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LOCAL PRODUCTION SYSTEMS AND REGIONAL ECONOMIC DEVELOPMENT

Edited by
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Novosibirsk–Sofia–Ternopil–Lodz
2014

L 85 Local Production Systems and Regional Economic Development /ed. by
A.S. Novoselov and V.E. Seliverstov. – Novosibirsk, Sofia, Lodz, Ternopil,
2014. – 352 p.

This collection of papers contains the results of research carried out by the participants of the “International Project FOLPSEC № 295050 within the 7th EU Framework Program FP7-PEOPLE-2011 IRSES” “Functioning of the Local Production Systems in the Conditions of Economic Crisis (Comparative Analysis and Benchmarking for the EU and Beyond)”.

The papers study the following problems: sustainable development of local production systems, business strategies of LPS, innovativeness of clusters, critical infrastructure protection, corporate social responsibility, environmental protection, local production system management, governance of local production systems in Bulgaria, Poland, Ukraine and Russia, policy guidelines with some measures of general application, aimed at problems observed in all LPS, and some specific measures differentiated according to a typology of local production systems.

ISBN 978-5-89665-277-9

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ISBN 978-5-89665-277-9

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PREFACE

In recent years in the world research of regional development much attention is paid to the functioning of the local production systems (LPS). This became especially relevant in the context of the global economic crisis, when the survival of regions with different levels of development largely depends on the capabilities of their self-development and competitiveness, good governance and availability of a variety of public and private institutions.

This collection of papers contains the results of local production systems development research carried out by the participants of the International Project FOLPSEC № 295050 within the 7th EU Framework Program FP7-PEOPLE-2011 IRSES “Functioning of the Local Production Systems in the Conditions of Economic Crisis (Comparative Analysis and Benchmarking for the EU and Beyond)”.

The subject of research of the Project FOLPSEC is the local production systems (LPS) taking the considerable diversity of forms including regions of different types and rank, such as municipalities, industrial centers and nodes, territorial-industrial clusters, free economic zones, different territorial innovative combinations (technopolises and technology parks), regions of new economic development, etc.

In spite of this diversity of forms LPS have a number of essential characteristics in common, of which the main ones are the economic viability of the territory (especially the presence of economic potential necessary and sufficient for self-development), manageability (the presence of the subject for management of a given territory) and institutional factors (the presence of the institutional mechanisms underlying decision-making on the area and providing, in particular, the training of qualified personnel, conducting research and innovation, tax, financial, organizational and other support for development).

The purpose of the Project FOLPSEC is deepening theoretical research in the field of local production systems (LPS) and strengthening their practical application in the context of finding ways to overcome the global economic crisis.

To achieve this goal it is suggested to focus on the solving of the following main tasks:

- to carry out the exchange of knowledge in the field of approaches to the study of LPS and to make recommendations for the EU based on the use of positive practice in different countries in conditions of the economic crisis;
- to provide the exchange of the results of research of organizations-participants in the field of research of the functioning of the LPS for accelerating economic and social development and overcoming the relative regional disparities;
- to promote the use of the gained knowledge and good practices for scientific and educational purposes in all participating institutions;
- to lay the foundation for long-term cooperation between the EU and the third countries in the direction of strengthening the scientific partnership in the field of regional economic development.

The Institute of Economics and Industrial Engineering of the Siberian Branch of the Russian Academy of Sciences (IEIE SB RAS) is one of the research participants in the International Project 7th Framework Program of the EU FP7-PEOPLE-2011 IRSES “Functioning of the Local Production Systems in the Conditions of Economic Crisis (Comparative Analysis and Benchmarking for the EU and Beyond)” – FOLPSEC, No 295050. Duration of the project: 01.04.2012 – 30.03.2015. Project Coordinator in the IEIE SB RAS is Olga P. Burmatova.

Project participants are divided into two groups – the beneficiary countries (members of the European Union) and partner countries (non-EU). The first group consists of Bulgaria (University of National and World Economy, Sofia), Poland (Lodz University, Lodz) and Slovakia (Matej Bel University, Banska Bystrica). The second group includes Ukraine (Ternopil National Economic University, Ternopil) and Russia (Institute of Economics and Industrial Engineering SB RAS and Novosibirsk State University (NSU), Novosibirsk).

The present Collection of academic papers includes some intermediate results of research of the participating organizations on the Project FOLPSEC for 1.5 years (from April 2012 to September 2013). Better reflection of the outcomes of the work will be presented in two monographs, one of which is currently being prepared for publication at the University of National and World Economy (UNWE), Sofia (Bulgaria) in 2014.

**SUSTAINABLE DEVELOPMENT
OF LOCAL PRODUCTION SYSTEMS
IN TIMES OF FINANCIAL AND
ECONOMIC CRISIS¹**

*Stanka Tonkova²,
Mariana Kuzmanova³*

This research was supported by a Marie Curie International Research and Staff Exchange Scheme Fellowship within the 7th European Community Framework Programme. Executive summary: The work focuses on important issues related to measuring the results of the implementation of local production systems (LPS), as well as to stimulating their sustainable development during the current financial and economic crisis. It offers a widely applicable open system for metrification of LPS management based on quantifiable indicators and an innovative approach that enables synchronized management decisions over different periods of time.

INTRODUCTION

The European experience shows that one of the ways to increase the potential of the Bulgarian economy and to successfully respond to the international market competitive pressure, especially in times of financial and economic crisis, is the establishment and the maintaining of LPS development in regional systems, considered in the meaning embedded in the definition given by Local Production & Innovation Systems Research Network. According to that definition LPS are “territorial groupings of economic, political and social actors focusing their efforts on a specific group of interrelated activities. In Local production systems there are usually involved a wide range of interacting companies – manufacturers of consumer goods, suppliers, service companies, business consultants, marketers, consumers and others.”⁴

¹ Publication under project 295050 „Functioning of the Local Production Systems in the Conditions of Economic Crisis (Comparative Analysis and Benchmarking for the EU and Beyond)” (FOLPSEC), FP7.

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⁴ Network’s Website <http://www.ie.ufjf.br/redesist/> (2009-05-05).

LPS are characterized by a diversity of forms of cooperation between the various stakeholders involved.

Unlike other cluster structures, LPS composition also includes various public and private institutions which provide: education and training (technical colleges, universities, etc.), research and innovation (research laboratories and centers) funding and support (banks and other financial institutions, politicians, local authorities' representatives, etc.). It can therefore be concluded that due to the interdependence and cooperation between the stakeholders in the local production systems, they offer the potential to increase the endogenous innovative capacity, as well as to accelerate local economy and local development competitiveness.

Conceptual differences¹ between the systems are due to variations in the level of development, the integration of the production system, the interaction between the stakeholders, the institutional provision, as well as to the innovative potential of the region.

The environment in which LPS operate is characterized by dynamism and complexity. Challenges in ensuring LPS long-term successful operation are extremely large. It is therefore necessary to apply a strategic approach to the regional development management, thus providing for both effective use of resources and competitiveness creation at advanced level. The strategic approach can be realized through the development and implementation of a flexible management concept.

The *aim* of the authors is to develop a balanced set of factors and indicators for LPS sustainable development management and its effectiveness measuring through an appropriate metrification. To achieve this *goal* the following research tasks are solved:

- Displaying the key issues in the field of strategic management and LPS competitive behavior with a view to make full use of their capabilities for local development acceleration and intensification of the sectors their formative subjects belong to.
- Developing a methodology for determining the results and effectiveness of LPS strategic development.
- Defining guidelines for practical use of the model for LPS sustainable development management in times of financial and economic crisis.

STRATEGIC MANAGEMENT AND COMPETITIVE BEHAVIOR OF LOCAL PRODUCTION SYSTEMS

Local economy functioning is closely linked to the national economy conditions. State economic interests as well as those of national and multinational companies are not always in tune with the needs and interests of local communities. Therefore, local development in the late twentieth century and the beginning of the new century relies on a new paradigm - the paradigm of the "*entrepreneurial approach*". That approach foresees that the municipalities, districts and regions act in compliance with the market-oriented approach, and gain competitive advantage by relying on their own resources (including human capital), thus ensuring the prosperity of the civil society. Essential characteristic of the local economic development *entrepreneurial approach* is the focus on *the endogenous development*. The latter supposes, among others, the establishment of viable institutions that contribute to the efficient use of multi-purpose local resources by introducing new economic activities.

¹ Lombardi, M., The evolution of local production systems: the emergence of the "invisible mind" and the evolutionary pressures towards more visible "minds". // *Research Policy* 32 (8): 1443–1462, 2003.

.....

In Bulgaria the spontaneous processes of endogenous development are still little known¹. The experience in the establishment and development of regional clusters in the Sevlievo municipality shows that these are based on the partnership between businesses and local authorities that leads to the achievement of several competitive advantages. Local authorities could not only speed up the process of regional clusters establishment by creating a favorable investment climate, but they could also participate directly in these clusters. All participants in the regional industrial clusters have complementary interests and are characterized with mutual interdependence. They also have harmonized business strategies, which balance their objectives and interests, while at the same time they share the same values and management practices. As a result of the endogenous and spatial-economic interaction the Sevlievo municipality has become an economic agglomeration on the type of a local production system. The relationship between the companies and between the business entities and the territory is the key to the companies' population.

The Sevlievo Municipality is a model of endogenous development in the country², accompanied by increased and efficient use of natural, economic and human potential combined with the provision of high level of services to the population and economic entities. All this leads to increased productivity and competitiveness of the regional economy.

The successful implementation of the entrepreneurial approach paradigm to local economic development is rooted in the philosophy of the strategic management. The strategic management of economic innovation and development allows a region, district or municipality to transform its economic structure by changing the local industrial mix (local branch structure), professions, goods and services, technologies used, which it relies on for generating incomes and welfare.

In order to intensify the development of regional systems in the context of the endogenous development in the country it is necessary to implement the National Spatial Development Concept (NSDC) combined with spatial integration of the regional and sectorial planning through regional coordination of sectorial policies, strategies, plans and programs. By implementing NSDC a territorial basis to promote polycentric development of the network of cities and improving the links between central and peripheral regions should be established.

In times of global financial and economic crisis to stimulate regional growth need not only depressed areas or unincorporated rural communities, but still prosperous regions. For their successful integration into the European structures, they should implement a new type of restructuring through LPS establishment and development as well as through cluster structures' development. LPS are of particular importance for the development of SMEs from cluster groupings, as they are built on their particular competitive advantages, thus giving them the possibility to survive under conditions of strong competition thanks to the access to information and specialized resources and the high degree of flexibility and innovativeness. LPS scope covers different companies; other similar or supporting organizations of the country as well as from other countries in

¹ The municipality of Sevlievo is developing two clusters. *The first one* is bringing together manufacturing companies producing sanitary fittings and sanitary ceramics. The central role in that cluster is performed by the united company Ideal Standard – Vidima AD, a leading manufacturer of sanitary fittings and sanitary ware and a leader in the areas of product distribution management in Eastern and Western Europe and commercial activities management of the multinational company Ideal Standard International in Eastern Europe. *The second cluster* operates in the area of electrical equipment, and cable and wire production. That cluster has two major companies: ABB Avangard (specialized in engineering and manufacturing of equipment for medium and high voltage products and service products), and EMKA AD (producing enamelled copper wires, round and rectangular copper and aluminum wires with paper, glass-fiber and foil-fiber insulation and more).

² Data provided by the municipality of Sevlievo state its population has 41500 inhabitants, of which 26800 live in the municipal center. In 2011 the industry occupied 76% of the total volume of the gross production in the municipality. There are 1200 firms, including 7 large companies employing over 250 people each. The unemployment rate is 6.1% while the average for the country is 9.97%. The industries defining the structure of the Local Production System – Sevlievo and certified to international standards are: production of sanitary fittings and sanitary ware, production of high-voltage devices, molds, and transition lines, wood processing, furniture, knitwear and textiles manufacturing.

Europe and outside Europe, whose importance and presence in the system are determined by the market forces¹.

It can therefore be concluded that local production system development depends on:

- The investment policy carried out at the national, regional and local levels, including also measures for successful development of "satellite" businesses.
- The investors' policy of commitment to local problems of education, infrastructure and others, including also the inclusion of investors' partners to the results of these investments.
- The developed and jointly implemented long-term strategy for the development of the local production system based on a diversified knowledge driven economy².
- The availability of an adequate regulatory framework governing the relations between the entities, including for the financial, administrative, political and market decentralization, as well as for the participation of the civil society in the decision-making process concerning local development, public-private partnerships, etc.³
- Local production systems' development largely depends on: the relation "social capital - institutional support"; interregional cooperation (for example partnership between neighboring municipalities to increase the attractiveness of the region as a whole and to develop strategies and plans for its future development); establishing partnerships with external "stakeholders", thus providing for: transfer of information on good practices, development of joint business initiatives and expansion of the target audience for the LPS production.

DETERMINING THE RESULTS AND EFFECTIVENESS OF LPS STRATEGIC DEVELOPMENT

Improving LPS performance as a whole, as well as within the individual organizations that form them, requires systematic measurement and assessment of both realized and potential outcomes of development, combined with effective management of their engines⁴. That need is particularly relevant in the context of the financial and economic crisis – when pressure from competitors is increasing and customer needs are quickly modified. Thus, early signals could be obtained. In this respect A. Neely notes that "... measures for development instead of measuring the activity, since the role of measurement is rather to support the development of the organization, than to assess the activity."⁵ Table 1 presents the results from the comparison matrix of the traditional and integrated systems of indicators for performance assessment.

¹ According to Porter, the more concentrated geographically is a national production, the greater is its competitiveness at the international market. P. Krugman shares the similar opinion on the importance of the economic geography of a country in terms of its growth and international competitiveness. Knowledge generated by the companies in the local production system together with the possibility for "collective learning" have been identified as key factors in promoting innovation and entrepreneurial dynamism in clusters.

² The Europe 2020 Strategy sets three interrelated priorities: Smart growth: an economy based on knowledge and innovation; Sustainable growth: an economy that expend resources more efficiently, being more "green" and more competitive; Inclusive growth: based on high level employment in the EU economy and contributing to social and territorial cohesion.

³ According to Porter M. the role of central governments and relevant local authorities is to facilitate and support competitive industrial clusters development, by providing businesses with an appropriate institutional environment for prosperity.

⁴ Kaplan R.S., Norton D.P. The Balanced Scorecard: translating strategy into action. Boston, Harvard Business School Press, 1996. – P. 31.

⁵ Neely A. Prospects for Business Development. Measuring the indicators of the state of your business. Sofia, Classics and Style Publishing House, 2001. – P. 17. (in Bulgarian)

The system of indicators for performance assessment of the organizations involved in the LPS and of the LPS as a whole, should meet the following basic requirements:

- *The focus requirement* (concentration on strategic success factors);
- *The multidimensionality requirement* (the system includes a variety of indicators: internal and external; qualitative and quantitative; financial and non-financial; with regard to finance, customers, suppliers, markets, labor resources, processes, quality, resource utilization, flexibility, innovations, time, etc.);¹
- *The integration requirement* (clarity about the cause and effect relationships in the formulation and implementation of the strategy).

Table 1

Particularities of the traditional and integrated performance assessment systems

Traditional systems of indicators	Integrated performance assessment systems
<p><i>Orientation:</i> towards valuable indicators (the past);</p> <p><i>Main goals:</i></p> <ul style="list-style-type: none"> – costs reduction; – assessment of the financial targets' achievement; – fragmented analyzes. <p><i>Nature:</i></p> <ul style="list-style-type: none"> – isolated assessment of costs, performance and quality; – insufficient analysis of deviations; – individual contribution is stimulated; – individual training; – underestimation of the intangible resources of the organization (knowledge, qualification, key competences etc.)²; – insufficient orientation towards the strategy. <p><i>Movement of the information:</i></p> <ul style="list-style-type: none"> – vertical structure of the records. <p><i>Flexibility:</i></p> <ul style="list-style-type: none"> – limited, summarizes significant volume of internal and external information. 	<p><i>Orientation:</i> towards the consumers (the future);</p> <p><i>Main goals:</i></p> <ul style="list-style-type: none"> – performance improvement; – assessment of the degree of strategy implementation; – integrated analyzes. <p><i>Nature:</i></p> <ul style="list-style-type: none"> – simultaneous and coherent assessment of costs, performance and quality; – direct reporting of deviations (unit, person); – team work and team contribution are stimulated; – training of the entire organization; – multi-dimensional analysis of all the resources of the organization; – focusing on the strategy. <p><i>Movement of the information:</i></p> <ul style="list-style-type: none"> – horizontal structure of the records <p><i>Flexibility:</i></p> <ul style="list-style-type: none"> – increasing, adaptability to the needs of the operational and strategic management.

The basis of the proposed by the authors of the present publication model for determining the results and effectiveness of LPS strategic development are: the adopted key ideas of the balanced scorecard for result assessment, the fuzzy sets and actions with them, the 11-point Likert Scale applicable to the fuzzy sets, and the experton-functions.

While evaluating both the performance of the organizations involved in the LPS and the LPS as a whole special attention should be devoted to the sustainable development issue in the context of the Concept of sustainable development of society. The notion of sustainability is considered "quality of endurance, perseverance (it is also called stability); it is manifested while changes (disturbances) in the equilibrium, constant (normal) state and function of the system are observed; as a result forces, restoring the original condition for system functioning are caused"³. The present paper shares the understanding that the sustainable development of the organizations involved in the LPS is the LPS harmonious development within the different perspectives of the Balanced Scorecard, aimed at ensuring long-term success for the local system as a whole.

¹ A possible list of indicators is proposed by the authors in the text below under point 2 "Determination of the results and effectiveness of LPS strategic development"

² Kaplan R.S., Norton D.P. Die strategiefokussierte Organisation. Führen mit Balanced Scorecard. Stuttgart, (P. Horvath et. al.), Schäffer Poeschel Verlag, 2001. – S. 59.

³ Stanulov N. Can you make decisions. The Magic of Choice. Sofia, 2002. – P. 37. (in Bulgarian)

Table 2

Elements of the model for cluster sustainable development management

- ◆ Use of the Balanced Scorecard for performance measurement as a model for LPS strategic development management.¹
- ◆ Introduction of new perspectives in the model according to the LPS specificity and the requirements of the groups of influence on it.
- ◆ Development of a system of indicators within the different perspectives thus ensuring LPS sustainable and balanced development.
- ◆ Performance management of LPS development and analysis of its capabilities for sustainable development in times of financial and economic crisis.

Table 2 classifies the elements of the model for LPS sustainable development management that are further specified in the text below.

For measuring the performance of the organizations involved in the LPS, and of the LPS as a whole, the use of the 11-point Likert Scale is particularly suitable, due to the following two reasons:

- *First*, this kind of scale offers maximum detailed estimates; the estimates obtained are more accurate and could be easily accepted and rationalized by the experts².
- *Second*, a methodological tool for mathematical processing of the parameters included in the model by using fuzzy estimates is developed (Table 3).

Table 3

Applicable Likert scale in fuzzy sets

Quantitative value	Linguistic value
1,0	very good
0,9	practically good
0,8	almost good
0,7	good enough
0,6	more good than bad
0,5	neither good nor bad
0,4	more bad than good
0,3	bad enough
0,2	almost bad
0,1	practically bad
0,0	very bad

The expert judgments set by the 11-point Likert Scale, are tabulated using the appropriate method and normalized, and the cumulative complementary experton-function is calculated. (Annex 1.)³ The cumulative complementary experton-function is monotonically increasing, its value at 0 is 1, and the entropy is obtained at the end of the evaluation process. For that reason, the final fuzzy estimate represents its *mathematical expectation*.⁴

¹ Norton D., Kaplan R. "Measures that drive performance", Harvard Business Review, January–February 1992.

² Dalkalatchev H. "Enterprise Sustainable Development, paper, VIth Scientific Conference with International Participation "Management and Sustainable Development", Yundola, March 2004.

³ Kaufmann A., Aluja J.G. Técnicas especiales para la gestión de expertos. Milladoiro, 1993.

⁴ Kaufmann A., Aluja J.G. Técnicas especiales para la gestión de expertos. Milladoiro, 1993. – P. 105–110.

The mathematical expectation (E) “characterizes the center of the distribution. It is the average value of the random value computed from all its possible values, weighted by their probabilities”¹.

The final fuzzy estimate (E) is defined as:

$$(E) = 1/10 (f(1) + f(0.9) + \dots + f(0.1)),$$

Where $f(1)$, $f(0.9)$, $f(0.1)$, $f(0)$ are the respective values of the cumulative complementary experton- function.²

Annex 2 presents the algorithm for calculating the complementary to the experton-function. From an economic perspective the complementary can be interpreted as the untapped potential of the respective LPS strategic success factor. Consequently, this option allows for deepening the analysis with respect of the effective and balanced LPS development within the different perspectives (activity key aspects).

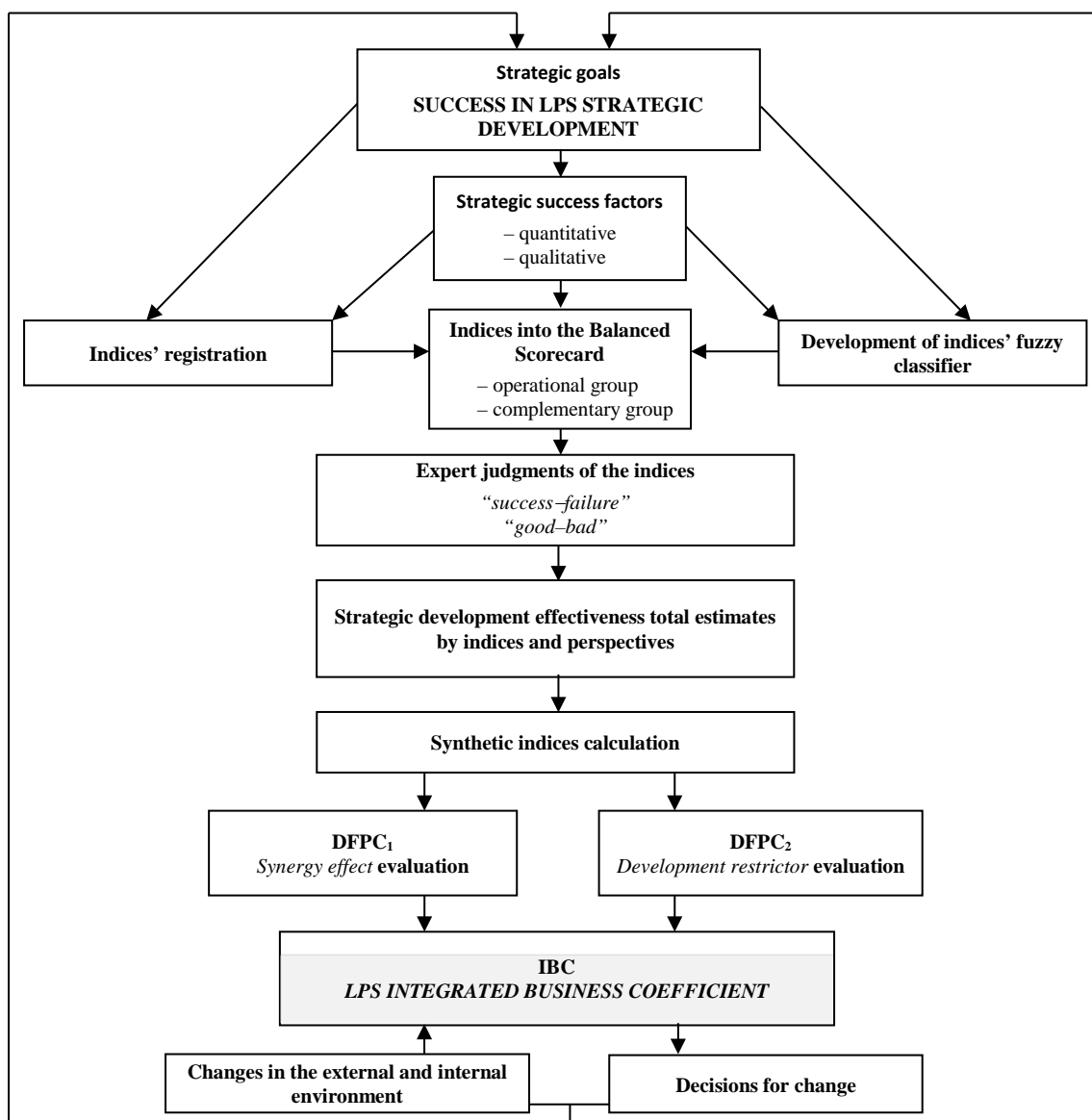


Fig. 2. A model for determining the results and effectiveness of LPS strategic development

¹ Gatev K., Spasov A., Radilov D. General Theory of Statistics and Economic Statistics. Sofia, Science and Arts Publishing House 1989. – P. 123. (in Bulgarian)

² Note: In calculating the final fuzzy estimate (E) the value of $f(0)$ is not taken into account.

Figure 2 presents the conceptual framework of the developed model, involving a system of indicators to measure the results and effectiveness of LPS strategic development. The developed and approbated model is implemented based on the following consecutive stages:

STAGE 1. Starting point of the model are the formulated LPS strategic goals.

STAGE 2. The strategic success factors are defined. These are aimed at achieving the stated strategic objectives.

STAGE 3. The strategic success factors are specified into appropriate indicators, for which a fuzzy classifier is designed. It is linked to the results of the registration process of the respective indicators.

The selected indicators are bound in a system through the model of the Balanced Scorecard for performance assessment¹. The Balanced Scorecard is a modern tool for strategy operationalization into a limited number of key indicators for strategic control and management metrification. The name itself (score) emphasizes the importance of the ranking in order to ensure the balance between the key parameters of LPS functioning within the process of change management in it.

The main purpose of the Balanced Scorecard for LPS functioning performance assessment is to specify the strategies through the four perspectives defined. Moreover, Kaplan and Norton emphasize the lack of a reverse relation between the strategy and the operational activities of the organization, although the success of the strategy depends crucially on the process of its implementation.

In this context, *the main function* of the Balanced Scorecard is to guide the overall process of planning, regulation and control of the LPS strategic development as “traditional measurement systems are obsolete, they are encouraged to care only for the nearest perspective; they often lead to a limited optimization.”²

As to the Balanced Scorecard it is a suitable tool for both strategic and operational control.

Within the Balanced Scorecard for LPS performance assessment the following perspectives could be defined:

- The financial perspective (*indicators*: Gross value added dynamics; Profitability, Profitability of the investments, Growth in net sales, Working capital etc.);
- The customer perspective (*indicators*: Number of concluded contracts, Customer loyalty; Media publications, Joint initiatives with customers (exhibitions, conferences), Marketing activities to attract new customers, Marketing activities to keep the old customers, Dynamics of market shares, Number of new customers etc.);
- The processes perspective (*indicators*: Average execution time of a standard contract, Number of standard contracts, Quality of production, Level of technology compared to the most advanced solutions, Labor productivity, Average time for decision-making, Quality of products and services etc.);
- The human resources perspective (*indicators*: Number of internal seminars and programs for qualification up-grading, Education and training costs per associate, Number of innovative and innovation proposals, Staff satisfaction, Average wage growth, Average age of the employees, Share of the employees with higher education, Staff turnover etc.);

¹ For the first time that approach has been applied in an empirical study of 12 companies on ways to improve the traditional evaluation of the financial performance. The topic of the project is: “Performance measurement in businesses of the future”. In this regard, Kaplan and Norton developed a balanced system of financial and non-financial indicators by structuring the measures into four areas (**perspectives**).¹ Kaplan R.S., Norton D.P. The balanced scorecard – measures that drive performance. in: Harvard Business Review, January–February, 1992. – P. 71–79.

² Neely, A. Prospects for Business Development. Measuring the indicators of the shape of your business. Sofia, Classics and Style Publishing House”, 2001. – P. 46–47. (in Bulgarian)

- The potential perspective (*indicators*: Implementing joint initiatives for cluster development, New initiatives and projects, Impact of the crisis on cluster development, Degree of novelty of the techniques and technologies used, Investments in IT, Partners' number: high-tech and research organizations, Employment dynamics in the region, Number and size of organizations in the cluster, Changes in cluster structure, Partners' joint actions effects; Investments in the conquest of new markets, Innovation structure, Investments in human resources development etc.);
- The ecological perspective (*indicators*: Composition and characteristics of the production resources, Discharges of polluting substances from the activities implemented, Administrative activities related to environmental and technical control and trials, Cost-efficient use of natural resources (energy, soil, water), Costs for reducing the harmful effects of production processes on the environment, Costs for industrial waste water treatment, soil remediation, and waste recycling etc.).

To ensure greater model flexibility the parameters are classified into two groups: operational and complementary. Thus, the problem with the use of a uniform scale for measurement of the various quantitative and qualitative strategic success factors and indicators has been solved.

In this third stage registration of the indices in the Balanced Scorecard for performance assessment is carried out. These are linked to the respective strategic objectives and strategic success factors.¹

Furthermore, a fuzzy classifier is drawn up for each index from the main group within each perspective of the Balanced Scorecard for performance assessment by using the 11-point Likert Scale. (Annex 3 presents the fuzzy classifiers for two of the indices included in the developed model.)

The classifier allows for the development of a unified rating scale to all strategic success factors and indices from the operational and complementary groups. The indices are specified by experts very well aware of the cluster and the environment. To this end the mini Delphi method developed by Helmer and Dalkey was used. The purpose is to reach convergence in the judgments.² In this case it is important to guide the expert reasoning to a certain extent in order not to miss important indicators and to limit their number within reasonable limits. The model has been applied to six indices for each of the six perspectives of the balanced Scorecard for performance assessment.

The developed fuzzy classifier of indices creates great opportunities to deepen the study on the basis of the cascade principle by using fuzzy logic and the operations union (\vee) and intersection (\wedge).³ It is thus possible to obtain the total estimate for each perspective within the Balanced Scorecard for performance assessment.

STAGE 4. The next stage in the developed algorithm is to conduct inquiries with the expert group to assess the individual indices within the defined perspectives of the Balanced Scorecard for performance assessment. These are treated with procedures admissible for the triangular fuzzy numbers and the experton-functions.

STAGE 5. Defuzzification. Values obtained by indices and perspectives are total estimates of the strategic development effectiveness in the relevant section of the study.

STAGE 6. Determining the values of the total business-coefficients that characterize the strategic development of the given cluster in terms of strategic goals degree of achievement in times of financial and economic crisis. The developed model allows to

¹ In case planning decision development is needed.

² Dalkey N., Helmer O. An Experimental Application of the Delphi Method to the Use of Experts, in: Management Science, 9/1969.

³ Kaufmann A., Aluja J.G. Técnicas de gestión de empresa. Previsiones, decisiones y estrategias. Ediciones Pirámide, S. A. – Madrid, 1992. – P. 37–55.

study in dynamics LPS economic entities (businesses) functioning and to make comparisons by years with the other LPS economic entities.

On this basis two synthetic indices could be defined:

- $DFPC_1$ – measures the interaction between the perspectives included into the model and the associated synergy effect;
- $DFPC_2$ – characterizes the restrictor of LPS economic entities development.

In the economic interpretation of the index $DFPC_2$, while taking into account the rules for handling the experton-functions an analogy with the model of von Neumann could be made: “The Neumann growth rate is actually determined by the slowest-growing product in the system. As the processes are linked technologically, the slower growth, although of only one product, is slowing down the growth of some of the other products.”¹

The synthetic indices $DFPC_1$ and $DFPC_2$ vary on the interval [0; 1]. The 11-point Likert scale could also be applied to them. By using the indices $DFPC_1$ and $DFPC_2$ the integral business coefficient (IBC) could be defined by:

$$IBC = \sqrt{DFPC_1 \cdot DFPC_2}.$$

The derivative index is a reliable indicator for a complex evaluation of the strategic development effectiveness, due to:

First, the formulated integrated business coefficient and its composite quantities are in line with the economic rationale for the assessment of the socio-economic systems and their development. It is based on the ideas of the Balanced Scorecard for performance assessment.

Second, the mathematical operations that are applied are feasible in the fuzzy set theory and in particular – in the field of the triangular fuzzy numbers.

Third, the integral business coefficient varies on the interval [0; 1]. The 11-point Likert scale to assess the success, failure, respectively, is also applicable to it.

On one hand, the worst case scenario (i.e. 0) is a logical consequence of the zero value of one and/or the two constituting indices. Thus one could conclude that the extremely poor (unsatisfactory) shape of the business derives from the negative development of one or several perspectives, which in itself is inconsistent with the objective of the sustainable and balanced development of the cluster. On the other hand, the convergence of the integrated business coefficient to the value of 1 is the result of the values of its constituent variables close to 1. In other words, the perspectives included in the Balanced Scorecard for performance assessment are growing steadily and are the engine of the development of the economic entities included in the LPS.

The accuracy of the conclusions formulated that are the basis for decision-making and concrete actions depends on the quality of the system of indicators, as well as on the reliability of measures used. The development and implementation of the Balanced Scorecard for performance assessment of LPS businesses functioning is a precondition to overcome several weaknesses of the traditional methods for result evaluation, namely: unnecessary excess of operational and in particular of financial indices of the activity; disorder in the indices and their analysis as a result of the calculation of unnecessary indicators; presence of uncertainty about the content of some indicators; lack of integration between measures and strategy².

The main advantages of the proposed by the authors' model for determining the results and effectiveness of LPS strategic development could be summarized as follows:

- Use of an innovative approach – combining the concept of the Balanced Scorecard performance measurement to the theory of fuzzy sets and the experton-functions.

¹ Vesselinov V. Mathematical Economics. Sofia, Science and Arts Publishing House, 1982. – P. 79. (in Bulgarian)

² Neely A. Prospects for Business Development. Measuring the indicators of the state of your business. Sofia, Classics and Style Publishing House, 2001. – P. 67. (in Bulgarian)

- Wide application – at national, regional and local level; for business entities within the group of small, medium and large companies, in sectors and industries, ministries and agencies.
- Ability to develop management solutions for cluster strategic development of clusters within different time periods.
- The model is an open system – the indices used were selected according to the activity specificity; the relevance of the indices registered provides for the model flexibility.
- Adaptability – easy adjustment of the model parameters to changes in the external and internal environment.
- Compactness – the model uses aggregated information previously obtained from the user's databases. Therefore, the model could be integrated into the overall information system for management of the local system as well as of the economic entities functioning at its territory.
- Systematic and accessible presentation of inputs and outputs (tables and graphics).
- The model could be implemented by using Microsoft Excel for Windows, which makes it practical and convenient to use.

While implementing the created model one should also take into account some difficulties accompanying the establishment of well-functioning systems:¹

- On one side, the size, complexity and structure of the management system make the choice difficult and increase the time needed for decision making. On the other – there is a trend towards shortening the time available for response.
- It is not possible to predict all changes in the system and the environment. On the other hand the systems under investigation are characterized by their inertia. Thus, the entropy their existence is related to shouldn't be underestimated.
- Making effective management decisions requires overcoming a number of problems caused by the multiple relationships between system parts and its environment.

Based upon the characteristics of the socio-economic systems given above it is not an easy task to develop optimal management decisions in times of financial and economic crisis. The point here is to take decisions aimed at system entropy prudent management. In this regard, the volume and quality of the information for both the system itself and its environment has an important role to play.

CONCLUSIONS

Local production systems develop and operate successfully due to their specificity, which is manifested through the local labor market and local institutions, as well as through the small, medium and large enterprises and their distinctive competences. Ensuring LPS sustainable development of PPE plays an important role in accelerating the process of Bulgarian economy integration in the European structures and in the provision of regional sustainable development and growth. Achieving that ambitious goal requires the application of a modern LPS management metrification concept, which will have significant effects on the economic growth acceleration in regional and national context, i.e. more efficient use of multi-purpose local resources, improving LPS management by using the benchmarking as a

prerequisite for the development of governmental packages of measures and initiatives to support and enhance the efficiency of local economic development and more.

¹ Stanulov N. Can you make decisions. The Magic of Choice. Sofia, Marin Drinov Academic Publishing House, 2002. – P. 45–46. (in Bulgarian)

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APPENDIX

Annex 1

Operations with the experton-function Expert judgments (example)

Expert	Interval	min	Max
E1	[0.5; 0.6]	0,5	0,6
E2	0,4	0,4	0,4
E3	[0.4; 0.5]	0,4	0,5
E4	0,5	0,5	0,5
E5	0,5	0,5	0,5
E6	[0.5; 0.6]	0,5	0,6
E7	0,5	0,5	0,5
E8	0,6	0,6	0,6
E9	0,5	0,5	0,5

Total interval expert judgments

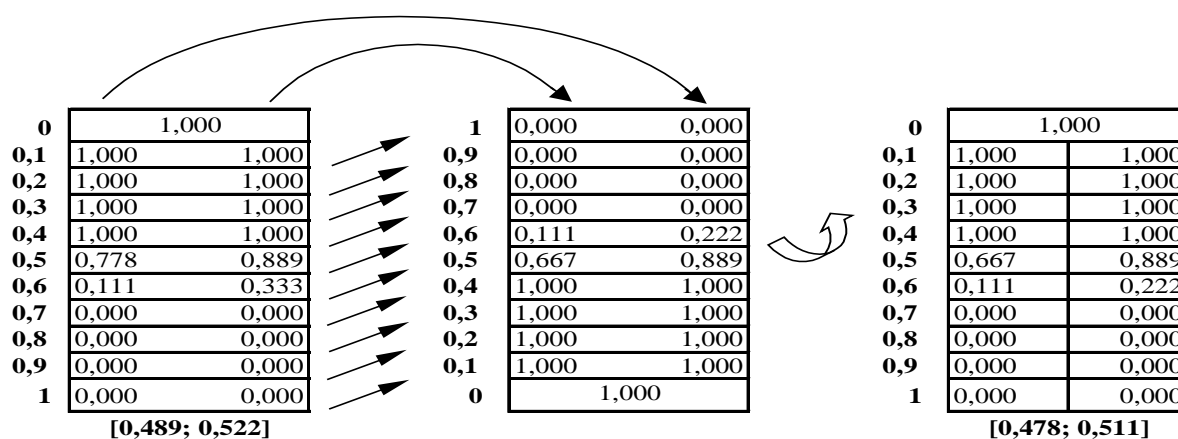
Interval	Description /linguistic judgment/	Experts								
		E1	E2	E3	E4	E5	E6	E7	E8	E9
1	very good									
0,9	practically good									
0,8	almost good									
0,7	good enough									
0,6	more good than bad	1					1		1	
0,5	neither good nor bad	1		1	1	1	1	1		1
0,4	more bad than good		1	1						
0,3	bad enough									
0,2	almost bad									
0,1	practically bad									
0	very bad									

Defining the cumulative complementary experton-function

Number of expert judgments			Normalized judgments			Cumulative complementary experton-function	
Interval	min	max	min	max		min	max
1						0,000	0,000
0,9						0,000	0,000
0,8						0,000	0,000
0,7						0,000	0,000
0,6	1	3	0,111	0,333		0,111	0,333
0,5	6	5	0,667	0,556		0,778	0,889
0,4	2	1	0,222	0,111		1,000	1,000
0,3						1,000	1,000
0,2						1,000	1,000
0,1						1,000	1,000
0						1,000	1,000
Final fuzzy estimate						0,489	0,522
Defuzzification						0,506	

Annex 2

Algorithm for defining the complementary to the experton-function



Perspective: **2. CONSUMERS**
Indicator: **2.1.01. – Dynamics of market shares**

Likert Scale meanings	Values
1 very good	Values $\geq 4.0\%$
2 practically good	Values within the interval (3.6%, 4.0%)
3 almost good	Values within the interval (3.2%, 3.6%)
4 good enough	Values within the interval (2.8%, 3.2%)
5 more good than bad	Values within the interval (2.5%, 2.8%)
6 neither good nor bad	Values within the interval (2.2%, 2.5%)
7 more bad than good	Values within the interval (1.9%, 2.2%)
8 bad enough	Values within the interval (1.6%, 1.9%)
9 almost bad	Values within the interval (1.3%, 1.6%)
10 practically bad	Values within the interval (1.0%, 1.3%)
11 very bad	Values $< 1.0\%$

Perspective: **2. CONSUMERS**
Indicator: **2.1.03. – Index of consumer affection**

Likert Scale meanings	Values
1 very good	Share of regular customers: $\geq 80\%$; Average turnover per client: +4%; EBIT per client: +3%; Efficiency of the incentives for additional purchases: +5%. In this case the index (I) is equal to 1.00.
2 practically good	I = (0.95; 1.00)
3 almost good	I = (0.90; 0.95)
4 good enough	I = (0.85; 0.90)
5 more good than bad	I = (0.80; 0.85)
6 neither good nor bad	I = (0.75; 0.80)
7 more bad than good	I = (0.70; 0.75)
8 bad enough	I = (0.65; 0.70)
9 almost bad	I = (0.60; 0.65)
10 practically bad	I = (0.55; 0.60)
11 very bad	I = (0.50; 0.55)

A MARKETING APPROACH TO THE LOCAL PRODUCTION SYSTEMS MANAGEMENT

*Galina Mladenova*¹

This study aims to highlight and discuss some specific features of the marketing and functioning of the marketing mechanism in regional clusters as a form of local production system. The study of the peculiarities of marketing in regional clusters is a “cross” between the established marketing knowledge and the thorough understanding of the nature, characteristics of the organization and the functioning of regional clusters.

Cluster marketing can be seen as a social process, directed at satisfying customer needs, regional communities and cluster members, based on the cooperation of marketing resources and activities, which results in achieving market competitiveness and overall functional efficiency for the cluster and its individual members.

The author defines cluster marketing as a systematic process of purposefully combining separate marketing activities and resources within the cluster to achieve the organizational goals of each cluster member through more effective participation in the competitive marketing process and creation of competitive advantages, based on greater efficiency and innovation. As a management process cluster marketing is a complex interaction, involving various levels and degrees of commitment between organizations including:

- interaction in the development of a common marketing strategy of the cluster;
- interaction in the development of its own marketing strategy in the context of the cluster marketing strategy;
- cooperation in coordinating the marketing strategies of the members in the cluster.

This study contributes to the understanding of some important aspects of cluster marketing: its nature and characteristics; cluster marketing importance as a major function that ensure sustainable growth; basic principles of cluster marketing and its organizational structure and main functions.

INTRODUCTION

The need to implement a marketing approach to the management of local production systems is indisputable. In the modern environment of globalization, intense competition, rapid technological change and high saturation and fragmentation of markets, marketing is one of the major functions that ensure companies and their partnerships sustainable growth. For decades research and marketing theory as a whole have been developed with regard to the functioning of individual companies. No doubt this theory is useful, but today's reality requires special attention to be given to the changes that occur in marketing, shifting from the micro level (the level of the individual company, pursuing its own goals and strategies) to the level of meta-organizations – coordinated systems of organizations which have to comply with a new set of institutional factors and entities and more complex forms of organization and relationships.

Local production systems are an example of this different object of study. The study of the peculiarities of marketing in regional clusters, which represent one of the specific forms of organization of local production systems is a “cross” between the established marketing knowledge and the thorough understanding of the nature, characteristics of the organization and the functioning of regional clusters.

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This study aims to highlight and discuss some specific features of the marketing and functioning of the marketing mechanism in regional clusters as a form of local production system.

In studying the problem we should be guided by the belief that corporate marketing and cluster marketing should not be juxtaposed – there is interdependence between them. The well-managed marketing activities of individual companies and intercompany relations and interaction contribute to the exchange of information and experience, which has a positive effect on cluster marketing as a whole. On the other hand, by participating in the cluster, the companies themselves are able to improve their management and marketing and achieve greater competitiveness.

Although the term cluster is indiscriminately used for quite a wide range of business arrangements, in its broad sense it refers to a geographical concentration of certain economic activities (Carpinetti et al., 2008). Firstly A. Marshall (Principles of Economics) noted that the agglomeration of firms working in similar or related activities generates advantages such as a pool of suppliers of raw material, equipment and specialized services, a pool of specialized workers and the dissemination of new knowledge. (Schmitz, 1999).

Porter defined cluster as a “geographically proximate group of interconnected companies and associated institutions in a particular field, linked by communalities and complementarities” (Porter, 1998). He stands that cluster is „geographic concentration of interconnected companies, specialized suppliers, service providers, firms in related industries in particular field that compete but also cooperate” (Porter, 2000).

According to Van Dennerg (Van Dennerg, 2001) a cluster is a “local or regional dimension of networks”, in some other views it is a system of collaborating and interacting companies which jointly evolve over time.

Clusters are localized related organizations (Perry, 2007). A cluster of firms is likely to facilitate efficient and effective collaboration and the leveraging of different resources and competencies possessed by each firm (Lawson, 1999).

From the above definitions several characteristics emerge that are directly related to the development of the cluster marketing concept and its application in practice:

- *geographical context* – physical (geographical) proximity of the cluster participants. This proximity can vary: from a single city to a country or several neighboring countries. With the local production systems consideration is given to the location of the participants in a specific administrative unit of the country – city, municipality, district, planning region.
- *industry context* – a connection with the same sector, on the basis of which relationships are built and developed (horizontal and vertical) and the potential for collaboration.
- *co-competitive context* – implementation of conscious cooperation, in a competitive environment, among several or most of the cluster participants. “Cluster firms must cooperate while they compete.” (Mesquita, 2007). Especially useful for the economic health of the cluster is the competition between the organizations within it in the area of invention and innovation. Although cluster firms and organizations compete, especially those on the same level of the technological chain, there are undeniable benefits for which they should cooperate with each other.

Conscious cooperation in the implementation of joint activities is a major factor in explaining the benefits of clustering. Collective efficiency as a competitive advantage derived from the combination of the local “external economies” and cooperated joint activities (Schmitz and Nadvi, 1999). It may be the result of horizontal cooperation (between competing entities) or vertical cooperation (between manufacturers and suppliers, between manufacturers and distributors of products) either bilateral or multilateral.

Altenburg et al. (1999) highlight the following characteristic features of clusters, reflecting on the functioning of their marketing mechanism: relationships between companies forwards and backwards along the value chain; intense exchange of information; formation of diverse infrastructure that supports the activities of the cluster; formation of social and cultural identity, derived from common values.

The concept of clusters, defined by Porter, provoked an active scientific discussion that went beyond the traditional interpretation of agglomeration economies. The major difference between a cluster and industrial agglomerate is that agglomerates do not function as individuals themselves and they lack institutional networks and a high degree of inter-company interaction, going beyond contractual exchange relationships.

Therefore when considering the question of the characteristics of cluster marketing, we can rely on the following definition of a cluster: a group of companies, related to the same industry, which are located in a separate administrative unit of the country and share common features and complement each other (horizontal and/or vertical relationships).

NATURE AND CHARACTERISTICS OF CLUSTER MARKETING

The marketing cooperation in the cluster can be seen as a specific form of cooperation within the cluster, leading to higher economic performance for the individual participants and the group as a whole.

In economic publications one can meet definitions of “integrated marketing”, “conglomerate marketing” as a special case of integrated marketing (Guercini et al., 2012) but there are no attempts to formulate a definition of “cluster marketing”. To a considerable extent the existing “gaps” in the theory of regional clusters are generally the reason for the lack of clarity on the issue and for the omissions in the analysis of the marketing factors and the relevant marketing concepts. Brown (Brown, 2010) is quite right to note that “limited research exists to indicate the degree of impact the clustering has on marketing activities”.

Cluster marketing can be seen as a social process, directed at satisfying customer needs, needs of regional communities and cluster members, based on the cooperation of marketing resources and activities, which results in achieving market competitiveness and overall functional efficiency for the cluster and its individual members.

This is intercompany collaboration in which many companies with complementary knowledge, skills and/or position in the supply chain plan and implement strategies, aimed at achieving synergy in innovation, design, production, promotion and the distribution of products and services for their direct clients and the clients downstream the chain.

Cluster marketing makes it possible to achieve the seemingly paradoxical goals: the high production efficiency of a small firm (an individual member of the cluster) is combined with the possibility of strong market power of the large firm (the cluster as a separate system). According to the few researchers of cluster marketing it is more than collaboration and coordination of the activities, carried out by the independent companies in the supply chain and it focuses on: cooperation in the innovation process of creating and adapting high technologies; designing products that fully meet the changing wants of customers; carrying out of production, capable of “meeting” demand that exceeds the production capacity of the individual “player”. Therefore cluster marketing is aimed at building multi-firm relations with the market, which creates benefits both for individual companies and for the group as a whole. Through it a common line of action is set, based on the belief that participants have similar problems and as a result of this common line, they can either succeed together or fail together.

Management process cluster marketing is a complex interaction, involving various levels and degrees of commitment between cluster organizations (Figure 1.) including:

- interaction in the development of a common marketing strategy of the cluster
- interaction in the development of its own marketing strategy in the context of the cluster marketing strategy
- cooperation in coordinating the marketing strategies of the members in the cluster

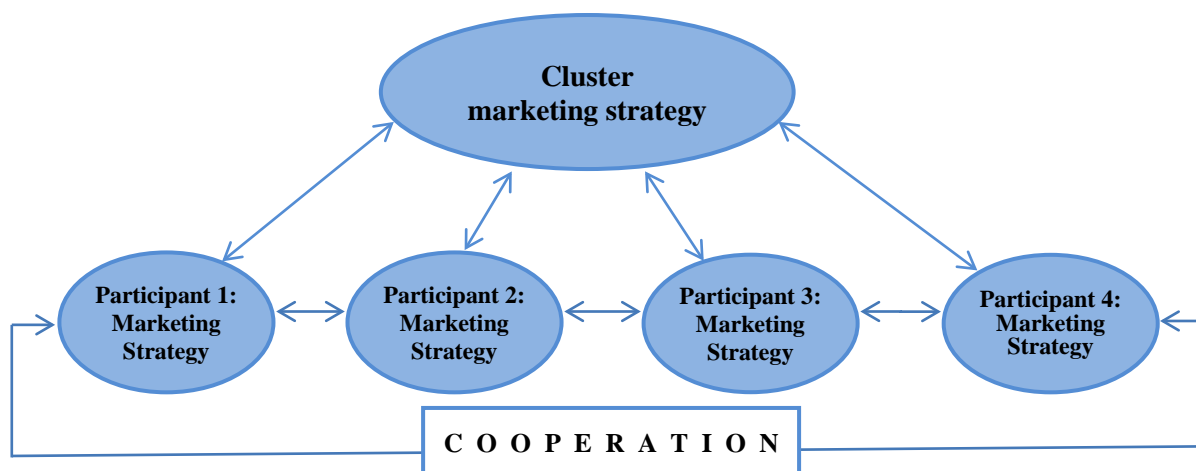


Fig. 1. Cluster marketing: management aspect

The marketing strategies cooperation can be implemented in some or all of the following areas (Guerchini et al., 2012):

First. Interfirm cooperation and coordination of functional strategies by the elements of the marketing mix – this refers to the interfirm coordination of communication processes, sales processes (branding, integration in terms of sales operations and channels), coordination of the decisions on product range, building a joint network of after-sales service, pricing agreements (in compliance with the legislative framework).

Second. Interfirm marketing cooperation, affecting other functional areas – this concerns the cooperation of marketing activities that have to do with various organizational aspects – cooperation in the training of sales personnel (marketing – human resources management); cooperation in developing new products (marketing – research and development), etc.

Third. Interfirm cooperation in marketing activities – this refers to the planning and implementation of specific marketing activities in which the independent organizations voluntarily join their efforts to implement project or series of projects (market research, penetration and development of a domestic or foreign market; supporting and joint use of customer relationship management systems; infrastructure projects, etc.).

Summing up what has been said above, we can define cluster marketing as the systematic process of purposefully combining separate marketing activities and resources within the cluster to achieve the organizational goals of each participant through more effective participation in the competitive marketing process and creation of competitive advantages, based on greater efficiency and innovation.

THE IMPORTANCE OF CLUSTER MARKETING

The marketing advantages for the cluster can be achieved through synergy in the area of marketing research, developing new markets, providing access to current and new markets, development of new products, development and co-use of marketing channels, etc. The most significant contribution of the marketing is that through it conditions are provided for creating higher added value, hence for enhancing the competitiveness of the cluster on a local, national and international scale.

In their study of the assessment of the performance and management of the collective efficiency of clusters Carpinetti et al. (Carpinetti et al., 2008) offer a system of metrics, adapting the concept of the balanced scorecard perspectives, developed by Kaplan and Norton (Kaplan and Norton, 1996). In the proposed system there are several areas of assessment of cluster performance:

- economic and social performance (measures of performance, related to the gross domestic product of the region, the workforce and any other result, creating benefits for the local economy);
- company performance (financial and non-financial measures of the growth and competitiveness of cluster firms);
- collective efficiency (measures, related to foreign economy and co-operation activities between participants);
- social capital (measures, related to cluster values and the degree of cooperation)

In their adapted methodology the authors propose a system of metrics to assess the performance of clusters (Table 1). We believe that marketing has an essential contribution to achieving the objectives in each of these perspectives.

Table 1

**Metrics and the relevant objectives and perspectives for assessing the results
of cluster functioning.**

Perspective	Objective	Metrics
Company's performance	Market increase; Increase market value; Improve productivity; Reduce costs; Sales growth; Profit increase.	Average unit sale price; Productivity; Value added per employee; Sales volume; Profit.
Social/Economic results Environmental impact	Improve availability of specialized labor force; Improve employment opportunities; Increase collection of industrial residue.	Total number of trained people; Collection of industrial residue.
Collective efficiency	Reduce costs; Improve cooperation.	Total amount of collective acquisition of raw material.
Social capital	Increase number of participants.	Percentage of companies involved with cooperation.

We look on the marketing as a key factor for attaining the objectives in the first perspective. It directly correlates with the improved performance of the individual participants in the cluster by expanding the market demand and increasing the market shares in already penetrated markets, penetrating and developing new markets and as a result of this – the creation of

conditions for an overall increase in sales and profits. On the other hand, the narrow focusing and specialization of individual participants within the cluster allows them to achieve higher profit margin per unit and to benefit from the effect of experience, hence – to increase their profitability.

- Marketing is able to develop conditions for creating and increasing demand on local and foreign markets, including the capacity to generate more sales from existing customers (through the “cross-selling” strategies and the strategies of “increasing sales”) and to attract new clients/customers for company products.
- As a result of the combined strength, through cluster marketing is “enhanced” the competitive advantage of the relatively small players – members of the cluster, in serving existing and developing new markets. It allows for the survival of start-ups and small firms and for the long-term strengthening of their positions on the market. Marketing enables the small and medium-sized companies in the cluster to overcome resource, management and time limitations and to take advantage of the integrated strength of the cluster for penetration and development on the market. As a rule each individual participant has limited material, financial, human, information resources and the implementation of individual marketing activity is relatively inefficient. Along with this “collective” strength allows the “survival” mindset to be transformed into proactive strategic thinking and behavior, i.e. to improve company management.
- Marketing is an important factor for the development of the innovation process in clusters. On the basis of intercompany relationships and interrelations within the cluster, conditions are provided for easier transfer of innovations and a close relationship is built between basic and applied research. In other words, product and process innovations are more easily converted into new products and services, entering the market. Unlike neoclassical thinking, according to which technology is seen as an exogenous factor and the focus of individual entities is aimed at providing and allocating resources, in the cluster organization technological development becomes an endogenous factor (Markusen, 1996).
- Marketing provides individual players with up-to-date and comprehensive market information and marketing expertise, which is difficult (especially for the small participants in the cluster) in independent marketing activities.
- Cluster marketing enables the sharing of consultancy services in advertising, the organization of trade fairs and the presentation and distribution of products, industrial design, cluster branding.
- As a rule, clustering can be seen as a kind of barrier to the entry of new competitors and the intensification of industrial competition.

The marketing impact can be highlighted with respect to the second perspective – social and economic performance: the collectively built image and reputation has a positive impact not only on the market, partners and various social communities and institutions. Reputation is a factor that makes the cluster an attractive workplace for the skilled labor in the region and outside it, on the one hand, and is a factor limiting labor turnover, on the other.

- The development of internal marketing communications (within the companies in the cluster and between them) creates the necessary conditions for work, training and motivation of the workforce. Marketing enables the training of human resources and/or attracting them which provides a continuous exchange of ideas and best practices within the cluster.
- By building non-commercial interrelations among participants, marketing contributes to the provision and maintenance of social responsibility in the activities of the cluster and its individual participants to the local environment (social communities and the natural environment).

- Marketing contributes to the development of regional brands, which benefits both the organizations in the cluster and the regional economic communities and the economy of the region as a whole.

An important marketing contribution can be found with reference to *the third perspective*. Marketing enhances the processes of co-evolution in the cluster. Co-evolution as a concept of biology describes the reciprocal changes that occur in interacting and interdependent biological species with time. In an analogous way the changes in the cluster may be regarded as a mutual adaptation of the individual types of entities – participants in the cluster, in which the survival and development of each individual entity is dependent on the survival and development of the other entities, to which it is related. Therefore marketing creates an appropriate platform for business cooperation between the participants in the regional cluster.

- Marketing helps reduce operating costs. This effect is achieved as a result of several factors:
 - ✓ The development of internal marketing communications in the cluster strengthens the relationships between the participants and allows for better knowledge and understanding, for enhancing trust and cooperation, for an intense exchange of information and resources;
 - ✓ The carrying out of collective purchasing of raw materials, basic and auxiliary materials and business services increases the strength of the cluster participants in negotiations and leads to negotiating better prices for the supplied products and services, which has a favourable effect on the levels of expenditure and structure;
 - ✓ The reduction in transport, transaction costs and the costs, related to the coordination between cluster members, increases the overall efficiency of the chain;
 - ✓ The possibility of economies of scale as a result of increased sales volumes and supply volumes; using the same marketing (communication and distribution) channels;
 - ✓ Cluster participants are encouraged to specialize with reference to technologies, information and other resources, thus developing unique capacities and abilities, which increases profitability, etc.;
 - ✓ The development and use of joint databases, which enable easier communication with customers and a reduction in communication costs.

The high competitiveness and benefits of clustering for each participant are the strongest motivation to attract new cluster participants and expand its social capacity (*fourth perspective*). This type of cooperation requires not only a proactive attitude towards cooperation and commitment (Morgan and Hunt, 1994), but also the construction of social capital among the participants of a cooperative network (Gulati et al., 2000; Gulati, 2007).

On the basis of the arguments, produced above, we can conclude that the implementation of marketing in the cluster directly or indirectly affects all perspectives, in which the performance and efficiency of the cluster can be measured and assessed.

BASIC PRINCIPLES OF CLUSTER MARKETING

The operational mechanism of cluster marketing is subject to the rules for marketing operations, agreed on by cluster participants, the specific measures of distribution benefits, the incentives and constraints that have been planned and the methods for implementation of external control over marketing activities. The marketing mechanism is “set in motion” and leads to the attainment of the set objective, provided a specific range of principles is adhered to:

- The “*responsibilities-interest*” principle refers to the commitments, taken on by individual participants and the benefits they receive from joint marketing activities. It is impossible to discuss cluster marketing if this principle is ignored or not working. All participants in the cluster must show full commitment, investing the resources, necessary to achieve the collective goal while protecting the interest of each of them. The operation of this principle is most obviously manifested in the “collective mark” model but compliance with it is also mandatory in the other models of organization of cluster marketing.
- The principle of *regulation* – it refers to the need to create conditions for the functioning and operational regulation of cluster marketing, including the establishing of specific organizational culture of the cluster, management systems, internal rules of conduct, building new structures (Chamber of Commerce, professional associations etc.).
- The principle of *long-term agreements* affects relationships related to market exchange. The marketing cluster organization should not only ensure cooperation, but also guarantee an effective exchange process and relationships. We know that clusters are based on long-term relationships between the various entities within the framework of a contract that coordinates the interests of all stakeholders. The contract also provides a means for the fair setting aside of marketing resources which each participant should share with others. When using a collective mark, for instance, this principle is embodied in the registration of a collective mark, the negotiating of the right to sell products with this trade mark and the sharing of the relevant costs for its launching and consolidating its position in the market.

ORGANIZATIONAL STRUCTURE OF CLUSTER MARKETING

Three models of organization of cluster marketing can be distinguished (Tu, 2011):

- The “*collective mark*” model / *cluster brand model*. In this model the participants in the cluster register and jointly use a collective mark while sharing support costs.
- “*See the customer*” model. In this model, the increase in sales of the individual participant and the achievement of “cohesion” in the cluster are the result of strict compliance with the specific requirements of the customer and taking orders on a long-term contract. Thus is achieved strong interdependence between the individual participants, which provides a sound basis for sales and reduces uncertainty and risk on the one hand, but it may hinder initiative and search for new opportunities, on the other.
- “*Sharing marketing channel*” model/channel network sharing model – in this model a company in the cluster uses its marketing channels, but when spare capacity is available, the remaining cluster companies can also use those developed channels and services. Subsequently, the received benefits may be extended by mutual supply of current market information, joint identification of market opportunities and risks, creation and provision of higher added value.

As it became clear, cluster marketing is based on the cooperation of individual independent organizations – members of the cluster, in terms of market behaviour and the performance of the group as a whole. The insufficient development of the theory of cluster marketing is also reflected in the lack of serious studies of its organization. On the basis

of the existing views on the matter (Tu, 2011), we can distinguish several types of organizational structures of cluster marketing:

- Hierarchical structure (Figure 2):

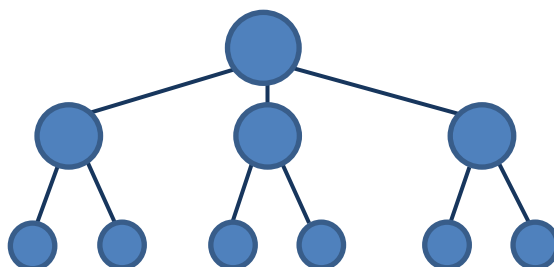


Fig. 2. Hierarchical structure of cluster marketing

The hierarchical organizational structure can be revealed in its two varieties:

- ✓ Cluster brand model. This model assumes that at the highest level should be differentiated joint activities, aimed at developing and consolidating a single cluster brand, at the average level – the activities related to the management of corporate brands and at the lowest level – product brands. It should be emphasized that there exists interrelation between the levels: the value of the cluster brand grows in the presence of strong corporate and product brands and vice versa – a strong cluster brand has a positive impact on corporate and product brands. A good example in this respect are tourism clusters – the recognition of a particular micro destination as a brand is a factor for increasing the brand value of the individual participants in the cluster and vice versa.
 - ✓ The leading organization model. In this model, the major marketing functions are “carried out” by a leading company in the cluster and its marketing networks. Usually the marketing department of the leading firm assumes responsibility for carrying out marketing research, participation in technological developments, planning and coordination of marketing activities, meeting the needs of the whole cluster. At the medium level focuses the responsibility for separate operational activities (logistics, packaging and other services). At the lowest level occur auxiliary activities.
- Star-shaped structure (Figure 3):

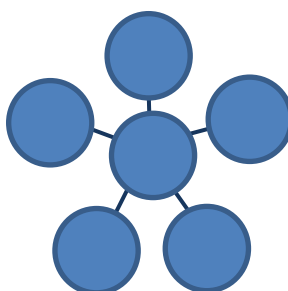


Fig. 3. Star-shaped structure of cluster marketing

This structure is characterized by the formation of a single centre, around which there are many entities (associations, technical institutes, educational institutions), specialized in the implementation of specific functions, including marketing ones. This type of organization is considered to be “looser” and it relies on the initiative and activity of the various production and technical associations in terms of the spread of ideas, technologies, the establishing of standards of behavior, etc.

- Linear-chain structure (Figure 4):

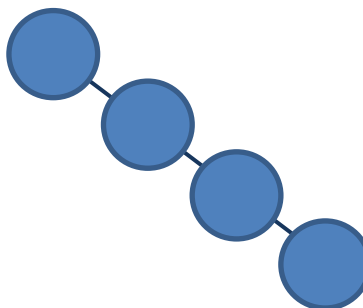


Fig. 4. Linear-chain structure of cluster marketing

In the linear-chain structure each link in the chain represents a definite marketing function of a virtual organization. Each virtual organization may incorporate in itself a number of units that perform one or more marketing functions. It is important to note that the separate virtual unit can exist only and solely in the presence of links with the other two units.

- Network (Figure 5):

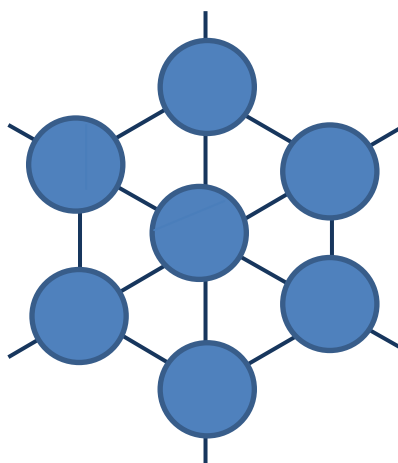


Fig. 5. Network structure of cluster marketing

In the network structure there is no distinct center. It has an open nature and involves a high degree of dynamism and flexibility.

Some authors (Carson et al., 2004) draw our attention to the fact that the functioning of the cluster marketing mechanism and the high marketing activity in the cluster is related to the existence of mature, stable social relationships between the participants. The close ties could be the result of prior social commitment of the entities, which creates trust, minimizes the unpredictability and risk in the behavior of partners, relatively reduces coordination costs and leads to a higher level of marketing cooperation. The stronger the social bonds between cluster members, the more likely it is to achieve high marketing performance. There is yet another opinion: good prior relationships which at first provide better adaptation to the market, may afterwards lead to inertia and overreliance on the network, as well as to neglecting external partners and weaker ties with them, which reduces opportunities and results. Along with the attention, paid to horizontal inter-company relationships, attention should also be given to vertical inter-company relationships, i.e., the relationships between cluster members and the other participants in the value chain. They are essential to marketing operation and performance, as the ability of the chain to generate and deliver the value, expected by end-users, depends on them.

CLUSTER MARKETING FUNCTIONS

Realizing the essence of marketing and the characteristics of clusters, we can define the basic functions that are subject to negotiation and agreement between cluster participants. These functions can vary, depending on the type of cluster and the stage in its development cycle (formation, maturity), on the specific features of the industry in which it operates, on the characteristics of the relevant markets, on the business environment of the region and the state, etc.

The level of marketing integration with respect to the functions, listed below, depends on other factors as well, among which: the degree of mutual trust between participants; the perceived reciprocity (“you–me, I–you”); the presence of business and marketing experience; the presence of experience in working in the local environment; the presence of experience in working in an international environment; business acumen; duration of the relationship; personal or emotional support; geographic proximity; the presence of joint databases for clients in order to improve communication with them, etc.

Practice has shown that the main marketing functions, that are carried out on the basis of cooperation in the cluster, are:

- Joint development of new products;
- Joint pricing strategies and planning;
- Joint development of distribution strategies and implementation of activities through distribution channels;
- Joint branding (co-branding);
- Joint promotional activities, including participation in advertising campaigns, brochures, catalogues, promotions, events, etc.;
- Joint marketing research;
- Joint participation in trade fairs, exhibitions, business conferences and other forms of presentation;
- Joint marketing delegations to explore market opportunities and conclude transactions;
- Joint programs for social responsibility;
- Joint missions on new markets and developing strategies for entering them;
- Joint sales on a local market and strategies for increasing market share;
- Joint sales on a foreign market;
- Creation and maintenance of joint marketing databases, enabling better targeting, communication and customer service;
- Joint training of marketing personnel and sales staff;
- Joint lobbying.

Cluster participants should aim at adequate allocation of their marketing resources, taking into account the overall marketing philosophy (strategy) of the cluster, on the one hand and, on the other, the task of strengthening the marketing mechanism of the whole cluster through cooperation, timely coordination of problem areas and guaranteed fulfillment of the agreements on sharing marketing functions.

CONCLUSIONS

In conclusion it should be pointed out again that the theory of cluster marketing is still insufficiently developed and does not correspond to the dynamic processes of creating new clusters and developing existing ones. It is generally believed that marketing contributes greatly to the effective functioning of clusters and to ensuring their competitiveness. However there still remain “blanks” and problem areas with reference to the sharing of resources in the implementation of marketing functions, the coordination of activities and the measuring of the results from them, the introduction of new marketing practices and incentives for marketing cooperation. These and many other issues need special further research and clarification.

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BUSINESS STRATEGIES OF LOCAL PRODUCTION SYSTEMS

*Radko Radev*¹

The following paper investigates some basic questions and remarks which concerns the product-market business strategies typical for LPS. The first part covers the basic features and performed typology of LPS. The second section provides an interpretation of product-market strategies based on the characteristics of LPS. Due to the limitations which are adopted in this study, the focus is only on LPS which are characterized by industrial specialization and vertical integration through the value adding chain. At the end of the paper a deduced methodological framework is made of related product-market business strategies in reference to LPS issues.

INTRODUCTION

In the literature devoted to strategic management the main focus is on issues relating to the product-market profile, strategic analysis, growth strategies and competitive business strategies. However, examination is carried out mainly on conceptual basis, initially overlapping classifications, revealing main theoretical and methodological aspects not offering a concrete approach that allows adaptation towards the specifics of the sector and towards the characteristics of the individual business organizations and LPS.

The *object* of attention is LPS. The literature devoted to the theoretical and methodical features of LPS identifies a wide variety of characteristics which suggests the need of their typology. Clearly LPS should be considered as normal business organizations which have their own specific characteristics (model) of operation and decision making.

As a *subject* of examination is some basic aspects related to product-market business strategies of LPS. Since theoretical developments suggest a wide variety of LPS, the present paper refers only to those operations which can be defined as a unitary business model. In this context the issues related to product-market business strategies should be adopted and implemented by all organizations within the framework of LPS.

The *main thesis* overlapping is that the issues related to product-market growth strategies from I. Ansoff's matrix and the underlying competitive business strategies – proposed by M. Porter – must be considered as a unit while adapting to the characteristics of LPS and the strategic business area within which it operates.

Related to business strategies theoretical studies gain popularity and are widely accepted by scientists and researchers in the field of strategic management. In practical terms, they need to adapt, reflecting the sectoral characteristics and features of the LPS and the organizations included. In this paper are considered some basic theoretical concepts related to business strategy arguing their specific application in LPS.

The *aim* of the study is to present systematized basic theoretical issues on the business strategies to identify related LPS's specifications. In this context, the study aims to present a methodological framework for the issues related to product-market business strategies and their specific expression in LPS as the core is placed on the product profile.

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To achieve the main aim a few key objectives (tasks) are set:

- To identify the main characteristics of LPS and present their typology;
- To analyze and systematize some basic theoretical issues related to business strategy;
- To justify the need for an integrated review of business strategies and their adaptation for use in LPS;
- To propose a methodological framework for examining the degree of implementation of business strategies in LPS.

Approaches to the Study. The basis of the adopted methodology of the research is the understanding of the complex nature of business strategies. Moreover, it discusses the usage of the systematic, functional, process and structural approaches.

Methods of study. To achieve the aims and objectives of this paper are used a variety of known methods for studying: analysis and synthesis, induction and deduction, structural and comparative analysis, methods of grouping (of different authors' opinions, methodological characteristics and companies by different principles), analogy method, graphical methods, expert assessment, statistical methods and others.

Adopted limitations. First, the scope of the questions does not cover all aspects relating to strategic management. The emphasis is on business strategies. Other issues related to strategic management – such as mission, vision, goals, strategic changes, evaluation and selection of business strategies, implementation strategies – are not a subject of special attention.

Second, when considering business strategies, a starting point is the clear understanding that they contain (synthesize) the strategies and mechanisms for their implementation in all functional areas from the value adding chain. For the purposes of this study the in-depth research is considered only for those related to the marketing field.

Third, this paper overlaps only those issues related to product-market and competitive business strategies. Due to the complexity and limitations in the scope of the publication there shall not be considered a number of provisions relating to business strategies: their dependencies on market positions, questions concerning vertical and horizontal strategies, strategic analysis, evaluation and selection of strategies and more.

Fourth, taking into account the different types of LPS and their features, it can be concluded that they provide a number of different forms of product-market business strategies. In this paper attention is paid only on the issues related to product-market business strategies concerning the LPS with specific industry focus (specialization) and vertical integration through the value adding chain.

CHARACTERISTICS OF LPS

As it is understood that the business clusters are multidimensional in nature, their typology is based on Porter's opinion (1998)¹. According to him, the cluster is seen as a geographic concentration of interconnected companies, specialized suppliers of materials and services, companies from related industries and associated institutions (including state, municipal, NGOs and others). A typical feature of these companies is that they compete with each other.

Similar to the Porter's definition of cluster are the terms proposed by Italian and French researchers – Industrial district and LPS (Local Production Systems).

Becattini defines Industrial district as “spatial concentration of small and medium-sized enterprises concentrated in industrial sectors and specialized in different phases of the production process, which contribute jointly to specific production identified as the district's indus-

¹ Porter M. (1998), Clusters and the New Economies of Competition, Harvard Business Review, 76, pp 77–90.

trial product.” He also looks on – Industrial district from socio-spatial point of view: “an industrial district is a socio-spatial organization characterized by an active co-existence of open community (society) of individuals and the enterprise sector”¹. French researchers formulate LPS concept: first as – “a system of enterprises grouped in close space around one of many industrial activities”² and second as “territorial union of economic, political, and social actors, whose efforts are focused on a specific group of interrelated activities”³.

Although these concepts may be criticized because of their broaden interpretation, their adoption is appropriate when taken in consideration the questions of typology of LPS. Based on the above mentioned definitions, could be identified the following main aspects of LPS: *firstly*, LPS functions in certain geographical boundaries; *secondly*, LPS is a specific business object that defines industrial affiliation; *third*, LPS consists of several or more major and minor players in the cluster; *fourth*, the participants in the LPS carried out various forms of cooperation and approaches which involve different degrees of autonomy and competition between them; *fifth*, in LPS could be identified the presence of relationships with related industries; *sixth*, there is observed a participation of various institutions with their role and place, which may initiate the establishment of LPS and/or supporting its operation; *seventh*, the LPS are considered through the life cycle concept which suggests different stages of their development.

Various forms and basic features of LPS. Along with the concept of industrial cluster in narrow sense, a number of concepts are identified which although similar in meaning suggest a different interpretation of the regional concentration of companies [Velev⁴; Bergman and Feser, 1999⁵]. Although in practice they are often accepted as identical (synonyms) to the term cluster, between them could be identified some differences. The broader interpretations of the geographical concentration of companies, sectors and related processes (proposed by French and Italian researchers) suggest various forms of manifestations. This makes appropriate the acceptance of the concept of LPS, thereby it describes all possible manifestations of regional business associations.

In support of the aspects presented in the definition of the reviewed authors, could be indicated the proposed by Enright⁶ ten dimensions (cluster dimensions):

- 1) geographic scope;
- 2) density;
- 3) breath;
- 4) depth;
- 5) activity base;
- 6) growth potential;
- 7) innovative capacity;
- 8) industrial organization;
- 9) coordination mechanisms;
- 10) status and development of the cluster.

Upon completion of their respective adaptation, these dimensions are at the basis of determining the characteristics that contribute to the typology of LPS (Figure 1).

¹ Becattini G. (1979), Dal settore industriale al distretto industriale. Alcune considerazioni sull'unità d'indagine dell'economia industriale. Rivista di economia e politica industriale, N 1.

² Courlet C. (2001), Les systemes productifs locaux: de la définition au modèle, [in:] Reseaux d'entreprises et territoires. Regards sur les systemes productifs locaux, DATAR. La documentation Française, Paris.

³ Local Production & Innovation Systems Research Network, <http://www.ie.ufrj.br/redesist>.

⁴ Velev M. (2007), Klasteren podhodm za povishavane na konkurentosposvnostta, Sofia: Softreid.

⁵ Brgman Ed. and Foster Ed.(1999), Industrial an regional clusters: concept and comparative application, Web-book of theWest Virginia.

⁶ Enright M. (2000), Survey on the characterization of regional clusters: Initial Results, Working Paper, Institute of Economic Policy and Business Strategy: Competitiveness Program, University of Hong Kong, p. 12.

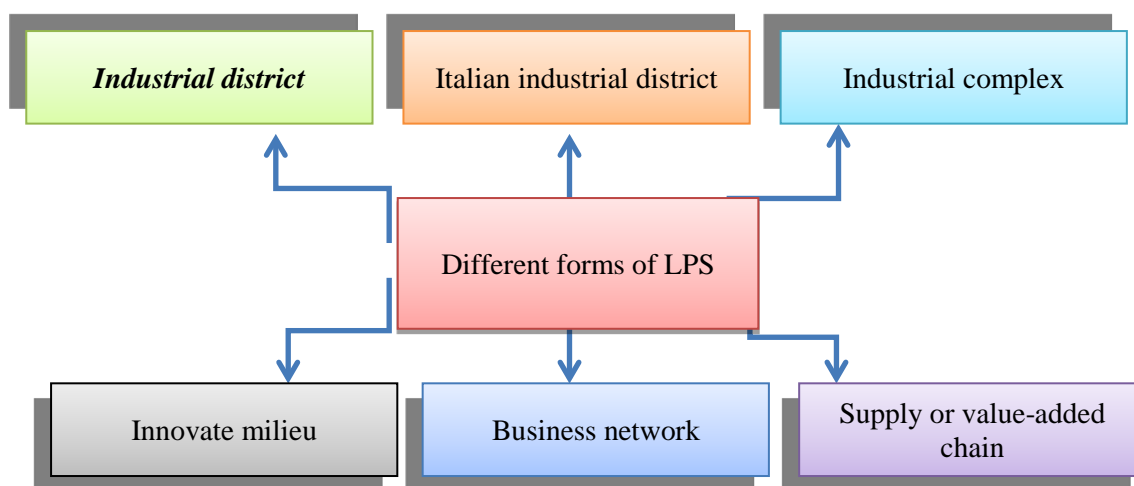


Fig. 1. Basic forms of LPSs

Typology of LPS. The above mentioned characteristics show their specific expression in practice which is reflected in the systematization and typology of LPS. Typology is accomplished by presenting of a number of classification features/indicators based on which are identified different types of LPS. As a starting point, the typology used systematization offered by Velev¹ and complemented by Hristova². They are tabulated as follows in table 1.

Table 1

Typology of LPS

Classification feature/indicator	Types of clusters
1. Cluster content³	<i>Marshallian clusters; Hub and spoke clusters; Satellite platforms clusters; State-anchored industrial clusters.</i>
2. Number of companies (participants)	<i>Saturated cluster; Unsaturated cluster.</i>
3. Kind of integration between the participants⁴	<i>Vertical clusters; Horizontal clusters.</i>
4. According to the level of integration	<i>Micro-clusters; Macro-clusters.</i>
5. According to the depth of the cluster	<i>Deep clusters; Shallow clusters; Clusters with unknown depth.</i>
6. According to the width	<i>Wide clusters; Narrow clusters.</i>
7. Range of activities	<i>Clusters with varied activities; Clusters with limited activity.</i>

¹ Velev M. (2007), *Klasteren podhodm za povishavane na konkurentosposvnostta*, Sofia: Softreid.

² Hristova V. (2009), *Savremenni parametric na industialnite clasteri v Balgaria*, Veliko Tarnovo: Faber, p.46–47.

³ Markusen A., Gray M. (1996), *Industrial Clusters and Regional Development*, Rutgers University Center for International Business Education and Research, New Jersey.

⁴ Michael E. Porter (2011), *Cmpetitive Advantage of Nations: Creating and Sustaining Superior Performance*, Free Press.

Classification feature/indicator	Types of clusters
8. Geographical scope	<i>Regional Clusters</i> <i>National Clusters;</i> <i>International Clusters.</i>
9. Geographical configuration	<i>Localized Clusters;</i> <i>Dispersed Clusters.</i>
10. Economic significance	<i>Clusters of regional significance;</i> <i>Clusters of national significance;</i> <i>Clusters of international significance.</i>
11. Depending on the origin of the material facilities	<i>Clusters result of the development of regional economy;</i> <i>Clusters result of the use of foreign investments.</i>
12. According to the basic reason determining the emergence	<i>Arising in connection with (based on):</i> – <i>possession of a particular resources;</i> – <i>availability of an appropriately qualified labor force;</i> – <i>key technology and knowledge;</i> – <i>similarity of consumers and markets;</i> – <i>around companies that produce similar products;</i> – <i>around government objects;</i> – <i>around universities and research institutions;</i> – <i>government and/or regional economic development policies;</i> – <i>accidental events.</i>
13. From the viewpoint of the development stage	<i>Latent clusters, operating clusters; potential clusters;</i> <i>Clusters in the embryonic stage;</i> <i>Clusters in the growth stage, maturity stage, situated in a downturn</i>
14. According to the sources of competitiveness	<i>Clusters based on the value adding chain;</i> <i>Clusters based on a certain relevant competence.</i>
15. According to the growth of the cluster	<i>Stable Clusters;</i> <i>Increasing Clusters;</i> <i>Declining Clusters.</i>
16. Depending on the innovation capacity	<i>Clusters with high innovation capacity;</i> <i>Clusters with low innovation capacity.</i>
17. According to the strength of internal commercial relations	<i>Clusters with emphasized domestic sales;</i> <i>Clusters with emphasized domestic purchases;</i> <i>Clusters with strong internal trade relations;</i> <i>Clusters with weak internal trade relations.</i>
18. According to the strength of external relations	<i>Clusters of key importance;</i> <i>Clusters of moving importance;</i> <i>Clusters providing opportunities;</i> <i>Clusters with weak external relations.</i>
19. According to the degree of activity of the horizontal relations	<i>With respect to the activity of relationships of cooperation, collaboration and coordination are identified the following clusters:</i> – <i>clusters with high-activity relationships;</i> – <i>clusters of undeveloped relationships;</i> – <i>clusters without relationships.</i>
20. Depending on the mechanisms by which the coordination takes place	<i>Clusters coordinated:</i> – <i>formalized by one or more of its companies;</i> – <i>by informal relationships between its companies;</i> – <i>with the help of state or municipal authorities;</i> – <i>in the interaction of one or more of the companies and local and state authorities.</i>

BUSINESS STRATEGIES FOR INDUSTRIAL LPS WITH VERTICAL INTEGRATION

Basic assumptions relating to business strategies of LPS. Starting from the basic provisions associated with the strategies in warfare and popular dictionaries allows using the method of analogy to jump to their specific interpretation in business organizations. For example, the analogy that “wakes up” the battlefield is for the market on which the vertical LPS operates with its products, and the “enemy” are the competitors (direct and indirect) that strive to meet similar needs and gain stronger position in the market (territory), to which compete (fight).¹

The analogy displayed shows that the delimitation of the markets and the awareness of the needs that LPS (by its constituent organizations) seeks to satisfy, thus becoming a major strategic issue that should find an answer. This cooperation is reflected in specific forms and aspects of vertical and horizontal integration.

By defining business goals and priorities depends whether the product-market strategies that will be adopted in the LPS have an offensive or defensive character. The selection of a specific product-market specialization defines the boundaries of the battlefield (business area) of LPS. This in turn determines who will be the main competitors, to which LPS and the organizations included should identify the main competing approaches.

Some characteristics identify for the military strategies could be interpreted taking in consideration the LPS's strategies:

First, at the basis for defining the LPS's strategy/strategies should be the clear definition of the characteristics of LPS; on this same basis its typology shall be conducted.

Second, the business strategy of LPS is associated with the fulfillment of aim of the leading organization in the LPS and of the other companies included.

Third, the product-market profile determines the scope of activity and defines the competitive approach/approaches. In making decisions about the scope and competitive approach of LPS should be taken into account its characteristics and those of its constituent organization, as well as the needs of the market and competitive conditions.

Fourth, the issue of resource provision is decisive in making decisions related to business strategies within the LPS. The initial stage assesses the ability of individual organizations and LPS as a whole to provide the necessary resources. Not less important is the evaluation of the economic viability of the strategy. During the implementation a control is recommended on the resources spending, extent of strategy implementation and achievement of objectives.

Fifth, for making decisions, the related product-market business strategies and the identification of the main competing approaches in the LPS cannot rely solely on the intuition of managers of individual organizations. Considering the characteristics of the LPS, it is recommended the implementation and enforcement of a suitable system for strategic business planning, which is based on the configuration approach. Configuration approach suggests referring to the advantages of the approaches that various schools in the field of strategic management suggest.

Sixth, the most common business strategies in the LPS are classified as offensive and defensive. When LPS organizations geared towards high rates of growth, with increased sales revenue and market share, they apply an offensive strategy. In all cases, offensive strategies are oriented to “seize” a better position in existing markets (“territories”) or entering new ones. The defensive strategies, in turn, are oriented to maintain market positions, and hence the values of the main economic indicators of individual organizations and LPS as a whole. They are oriented towards the protection of market positions and weaning the

¹ Liddell B.H. (1991), Strategy, USA: First meridian printing.

attacks of the competitors which may be other LPSs or individual companies. These types of strategies may require withdrawal from certain markets or of existing products. The aim is concentrating their efforts to protect a limited area, if appropriate, to survive. It is also allowed a complete and controlled withdrawal from the market.

Seventh, the successful implementation of offensive and defensive strategies requires their successful deployment in tactical and operational actions that takes place in the individual participants in the LPS. In this respect, there is performed the ability to successfully manage the value adding chain within the LPS as a whole and the related operations that are performed in the individual organizations. The offensive and defensive strategies imply a different approach to resources distribution and determining the actions of the LPS by defining appropriate strategies, policies and mechanisms (marketing, production, innovation, human resources) within the context of value adding chain.

Characteristics of LPS's product-market business strategies. The performed literature review of a number of prominent authors in the field of strategic management, contribute to a full disclosure of the nature, content and scope of business strategies. The ideas and concepts discussed are not necessarily dedicated to the LPS's business strategies. However, there are enough general characteristics which allow their interpretation namely in terms of LPS (Table 2).

Table 2

Synthesis of theoretical statements related to business strategies

Authors	Main views on strategies in business organizations
George Steiner¹	<p>Strategy:</p> <ul style="list-style-type: none"> ◆ is the actions of top management, which are of highest priority for the organization; ◆ refers to the decisions that determine the direction of organization – mission and aims; ◆ relates to the actions that should be undertaken to understand the direction of development and to be supported; ◆ answers the question “What should be done by the organization?”, taking into account its strengths and weaknesses and the opportunities and threats of the environment; ◆ answers the question “Which is the main objective and the accompanying ones?”, as well as the approaches and mechanisms by which to achieve them.
Henri Mintzberg²	<p>Strategy is:</p> <ul style="list-style-type: none"> ◆ Plan which includes the approach and mechanisms on how to achieve the desired state and outcomes; ◆ Pattern of behavior which the company follows with or without a pre-approved plan; ◆ Position – the occupied (desired) market position by products and markets; ◆ Perspective – the direction of business development and vision for how to be achieved.
Kenneth Andrews³	<p>Strategy is the pattern of behavior that reveals:</p> <ul style="list-style-type: none"> ◆ the general aim, main objectives and tasks; ◆ products and general policies and plans followed in order to achieve these objectives and tasks; ◆ the ideal of economic and social organization that aims to achieve; ◆ the nature of economic and non-economic benefits for different stakeholder groups, including customers, employees, managers, individual communities, the general public which tries to satisfy. <p>The author makes a distinguishing between company strategy and business strategy:</p> <ul style="list-style-type: none"> – The company strategy is defined in terms of business portfolio. – The business strategy addresses the issues of product-market and competitive business strategies for a particular business. – In relation to business strategies is defined the desired market position.

¹ Steiner G.(2008), Strategic Planning: A step-by-step guide , New York: Free Press Paperback.

² Mintzberg H, Quinn J.B., Ghoshal S.(2003), 4-th Global edition, The Strategy Process: Concepts, Contexts, Cases, Pearson Education.

³ Andrews K. (1994), The Concept of Corporate Strategy, United States: McGraw-Hill Education.

Authors	Main views on strategies in business organizations
Michael Porter¹	<ul style="list-style-type: none"> ◆ Considers the necessity of identification of industrial and market structure and environment; ◆ Competitive analysis and grouping the competitors in strategic groups; ◆ Determining the need of proper understanding of the market signs; ◆ Argues that the role of a competitive strategy is “<i>to be different</i>”: <ul style="list-style-type: none"> – this means reasoned choice of a set of activities; – the objective is by their mix to be provided a unique value for the consumer. ◆ The Strategy refers to the <i>competitive position</i> which includes: <ul style="list-style-type: none"> – differentiating the value of products in the minds of customers/users in comparison with the competitors. ◆ Combination (synthesis) of the company aims and the means (policies) for their achievement; ◆ There are identified areas of strategic decision making; ◆ Defines three possible sources of competitive advantage to achieve the desired competitive position: <ul style="list-style-type: none"> – differentiation, cost leadership and niche strategy; ◆ Considers the need for long-term orientation of the strategy for achieving of truly sustainable competitive advantage; ◆ Presents the wheel of competitive strategy and the context in which it is determined.
Benjamin Tregoe and John Zimmerman²	<ul style="list-style-type: none"> ◆ The framework within which the direction of business development is determined; ◆ This means the products offered by the company and the markets for which they are intended; ◆ Determine the need for managers to define a “driving force” for the business; ◆ Identify nine possible drivers: product, market needs, technology, natural resources, method of sale, method of distribution, manufacturing capabilities, size/growth, return/profit.
Michael Robert³	<ul style="list-style-type: none"> ◆ His viewpoint on the strategy matches that of Tregoe and Zimmerman; ◆ According to him real object of attention are the “strategic management” and “strategic thinking”; ◆ Strategic decision making relates to four key areas: products and services, methods of sales and marketing, customers, geographic areas; ◆ The decisions which markets to serve and with what products are also based on a “driving force”; ◆ He indicates ten possible drivers. With some nuances nine of them coincide with those of Tregoe and Zimmerman. He adds the type of market in which the company operates (will operate).
Michael Treacy and Fred Weirsema⁴	<ul style="list-style-type: none"> ◆ According to them the companies achieve leadership positions by narrowing rather than expanding their business focus; ◆ They identify three “opportunities for adding value”, which are the basis for determination of business strategies: excellence in production (quality and price), close relationships with customers and their recognition, product leadership; ◆ As in the case of above mentioned driving forces, only one source of value must be used.

¹ Porter M. (2008), 1-st Edition Competitive Strategy: Techniques for Analyzing Industries and Competitors, New York: Free Press.

² Tregoe B and Zimmerman J. (1983), Top management strategy: what it is and how to make it work, Simon and Schuster.

³ Robert M. (1998), Strategy Pure & Simple II: How Winning Companies Dominate Their Competitors, McGraw Hill Professional.

⁴ Treacy M., Wiersema F.D.(1997), The Discipline of Market Leaders: Choose Your Customers, Narrow Your Focus, Dominate Your Market.

Authors	Main views on strategies in business organizations
Igor Ansoff^{1/2}	<ul style="list-style-type: none"> ◆ He offers product-market matrix which provides opportunities for company growth; ◆ The following options are revealed: market penetration, product development, market development; ◆ Introduces the concept of “unforeseen circumstances management”, which is associated with strategic distribution and strategically accordance; ◆ Sets the requirement for continuous development of the company’s capabilities and resources as to benefit from the advantages of constantly changing environmental conditions; ◆ Imposes the terms “strategic business area” and “strategic business unit”; ◆ Examines the terms “strategic potential” and “strategic leadership”; ◆ Determines the requirement for choosing a strategic position.
Gerry Johnson and Kevan Scholes³	<ul style="list-style-type: none"> ◆ The strategy reveals the direction of development; ◆ Determines the market coverage and product specialization; ◆ The competitive advantages; ◆ Determination of the resources needed for strategy implementation.
Alfred D. Chandler⁴	<p>Three components of the strategy:</p> <ul style="list-style-type: none"> ◆ Determination of long-term goals; ◆ Adaptation of the course/direction of actions; ◆ Distribution of resources.

Summaries related to product-market business strategies of LPS. Based on the reviewed literature, the following main conclusions are drawn. By them the product-market business strategies of LPS are revealed in terms of content.

First, the concepts that are related to product-market business strategies in greatest extent are: concepts for the strategic business area, strategic business units and product-market growth matrix⁵; the five forces analysis of the sectoral attractiveness, the strategic group of competitors, the model of value adding, basic competitive business strategies⁶; product-market profile and portfolio analysis methods⁷.

- Definition of the respective business area, within which the LPS operates, helps to analyze the inherent characteristics: geographic scope, market segments, distribution channels, main and secondary competitors and others.
- When to the analysis of business sector is added the analysis of the five forces, the structure and attractiveness of the LPS’s industrial environment is determined.
- The characteristics of the strategic LPS are determined by its internal characteristics (product-market profile, financial capacity of organizations in the LPS, etc.) as well as by the terms of the business sector within the framework of its operations.
- It is the relation "strategic business area – characteristics of LPS" that outlines the limits of determination of product-market strategies and possible competing approaches. They can be used by the LPS as a whole and by the individual organizations included in it.
- Important concepts that complement the already mentioned are: portfolio analysis methods, product-market profile, life cycle curve, key success factors, drivers in the

¹ Ansoff I. (1965), 1-th Edition, Corporate strategy: an analytic approach to business policy for growth and expansion, McGraw-Hill.

² Ansoff I. (2007), Classical Edition, Strategic Management, New York: Paulgrave Macmillan.

³ Johnson G., Scholes K. (1997), Exploring Corporate Strategy, Hamel Hempstead: Prentice Hall.

⁴ Chandler A.D. (1962), 1-th. edition, Strategy and Structure, Boston M.A.:MIT Press.

⁵ Ansoff I. (2007), Classical Edition, Strategic Management, New York: Paulgrave Macmillan.

⁶ Porter M. (2008), 1-th Edition Competitive Strategy: Techniques for Analyzing Industries and Competitors, New York: Free Press.

⁷ Kotler P. and Keller K.L. (2006), 5th edition. Marketing management. New Jersey: Prentice hall.

sector, Balanced Scorecard, ABC analysis, experience curve, economies of scale, PESTEL analysis, SWOT analysis, “Blue ocean” strategy and other qualitative and quantitative methods for decision making. They are applied both to the LPS as a whole and to the individual organizations that form it.

Second, the product-market business strategies determine the direction of development, product specialization, market coverage and competitive approach of LPS and the companies included. Business strategies must be “materialized” in practice by the LPS and their structural units. This is ensured by proper management and coordination of business processes and resources owned by all companies within the boundaries of the LPS.

Third, the “company” product-market growth strategies of Ansoff should be regarded as “business” strategies of the LPS, when it operates within a specific business field. Defining strategies as business ones, is to emphasize that in a particular taken LPS, product-market solutions are related to the business field in which it operates. As product-market business strategies are adopted all intensive growth strategies, concentric and horizontal diversification. As an argument for this it can be said that it requires the addition of new product categories and groups which are related to the existing business field and requires close competencies that have been developed by the organizations from the LPS.

Fourth, there is interdependence between the two types of product-market business strategies considered, which determines the scope of business and competitive approach. On one hand, through the product-market strategies (of Ansoff) geographic scope of LPS’s activity is defined, the selection of target segments – mass marketing, target marketing, differentiated or niche marketing (Kotler). On the other hand, the competitive business strategies (Porter) are at the base of determining the main competitive approach. It defines the guidelines for differentiation and positioning of the individual brands by target markets (Kotler). It becomes clear that an “active role” is given to the strategic marketing tools – segmentation, targeting and positioning.

Along with the above stated four main conclusions, the performed literature review allows some additional ones to be introduced. The nature of product-market business strategies are revealed in greater depth by them:

1) The practical application of systematic and complex approaches is necessary, covering all members of the LPS;

2) In general, the strategy reveals the way, the main approach for achievement of the main objective pursued by the LPS and companies included;

3) Perceived understanding is that the strategic decision making must be approached methodically;

4) Although there are objections to the application of a formal approach, there are enough arguments for the adoption of a strategic business planning system that takes into account the characteristics of LPS and the business area;

5) The product-market strategies are "consequence" on one side and “cause” (for a change) on the other;

6) The product-market strategies are interpreted in a narrow and broad sense. The first case address the different strategies and their characteristics. Different types of strategies are distinguished which determine the direction of development, market scope, product specialization and approach of creating a competitive position in the target market. When accepting the broader interpretation is understood that the strategy should reflect the internal conditions of LPS and the external environment as well;

7) When determining the strategies of LPS should be taken into account not only the interests of the main participating companies with their managers and employees, but also the interests of the state and municipal authorities, clients and customers, counterparties, financial institutions and the general public.

Scope of LPS's product-market business strategies. The above mentioned summaries allow for a specification of the scope of the product market strategies. Chandler reveals the scope of the strategy, defining its three components:

- 1) the definition of long-term goals;
- 2) the adaptation of the course/direction of actions;
- 3) resource distribution.

The current paper presents a broader interpretation of the scope compared to Chandler's. For this purpose additional elements are included. They are not elements of product marketing strategies in the direct sense of the word, but rather factors and circumstances related to their identification and implementation for the purposes of LPS. An important clarification is that the proposed elements are not necessarily a formalized part of the strategy document of the business organization or of the LPS, if there is one accepted. They are rather features and conditions that must be reflected in the definition of business strategy and in the course of its implementation. (Table 3)

Table 3

Scope and content of product-market business strategies

Variable characterizing the strategy	Description of the variable
1. Objectives of business organizations in LPS	What is the main objective of LPS and business organizations in terms of defining the product-market business strategies? Can it be achieved by the implemented strategies within the LPS or a change is needed?
2. Resource availability an economic assessment within the LPS	Information about the resources available to implement the strategy in LPS. Information about how to provide the resources that organizations and hence LPS is unable to provide independently. Economic justification for the appropriateness and consistency of the strategy from economic and financial perspective.
3.1. External environment – industrial and competitive structure	The strategy should reflect the conditions of the external microenvironment, which includes industrial structure and market one as its inherent part. There are identified the drivers of change between the factors the microenvironment of the LPS.
3.2. External environment – macro factors	The strategy reflects the direction and strength of influence of the factors of macro environment - economic, political, demographic and social, technological, ecological and legal that affect the LPS. The driving forces of change in the macro environment factors are determined.
4. Levels of determination of LPS's strategies	Determines the level to which the strategy within the LPS refers. Observes the understanding that the strategies of higher level are transformed in objectives of lower level.
5. Direction of development of LPS	What direction of development the LPS to undertake in long term. The vision for development of LPS. Long-term goals that the LPS as a whole and the individual companies strive to achieve.
6. Market scope	Determination of market coverage: geographically, target segments and distribution channels used by LPS
7. Product specialization of LPS	Product specialization within the class width, i.e. number of available product lines (product categories) adhered by the LPS. Proposed main kinds of products within the product line determined by the brands and main varieties of products. Variants of the main product units.

Variable characterizing the strategy	Description of the variable
8. Competitive position of LPS (Positioning)	Reflects the competitive position which LPS wishes to take with products offered to different market segments. Contains the main approach that it will achieve in comparison with the competitors. Determines the value adding chain of LPS.
9. Functional mechanisms and policies of LPS (Key Success Factors)	Information about the functional mechanisms and policies as key elements of the value adding chain that will lead to actual implementation of LPS's product-market business strategies, including: input logistics, production, output logistics, marketing and sales, servicing activities, innovation, human resources and infrastructure. Contains information about the key success factors of LPS. Balanced Scorecard for strategy performance evaluation.
10. Internal prerequisites for implementation of the strategy in LPS	The internal prerequisites are related to the fact that the strategy takes into account the strengths which enhance the competitiveness of LPS and the weaknesses that hinder it. If the successful implementation of the strategy requires overcoming of LPS's weaknesses, it should be clear how to make that change happen.
11. Stakeholders of LPS	What power and expectations do different stakeholders have? Which group is essential for the functioning of LPS? How to balance between them so as to win their support?
12. Risks and adapting the course/direction of LPS's actions	What is the impact of the factors on the business of LPS? What alternatives are available for the development of LPS? Are any changes in strategy needed to adapt successfully the LPS?

METHODOLOGICAL FRAMEWORK

The presented methodological framework includes five sections. Within their frameworks are formed groups of questions, which enable the examination of:

- 1) the LPS's characteristics;
- 2) the LPS's management;
- 3) the process of strategic business planning applied in the LPS;
- 4) the main issues related to product-market profiles and product-market business strategies of LPS, depending on their characteristics;
- 5) profiling based on LPS's characteristics and product-market business strategies (Figure 2).

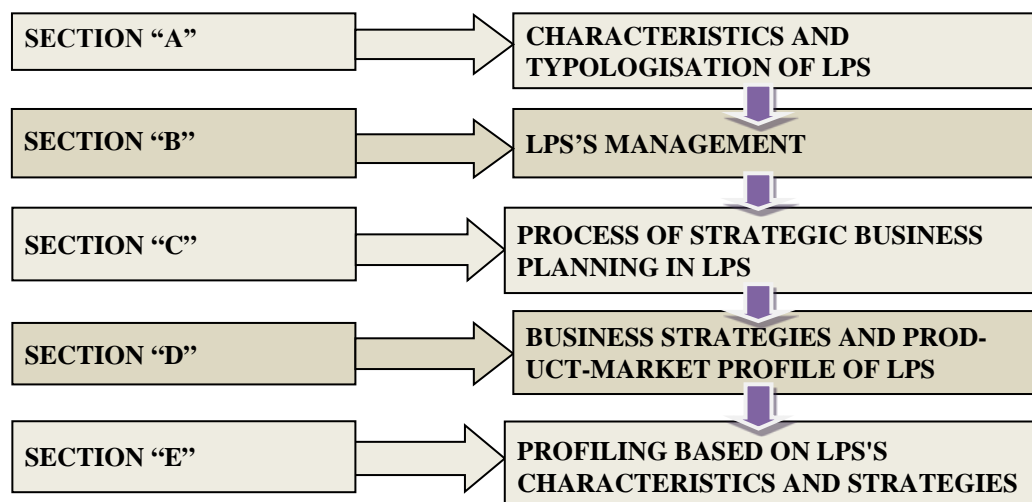


Fig. 2. Structuring the questions examined by the metric system

General criteria for assessment. Generally, the research of a particular aspect is evaluated with a particular grade scale to which correspond certain assessment statements. In the methodological system is applied an approach by which the evaluation is performed by choosing a particular statement which is closer to the typical situation for the studied company.

In this case, each statement corresponds to a particular grade. By answering the questions in the methodological scheme, the respondents have to choose the statements, respectively grades which to the greatest extent reflect the valid situation for their company (Figure 3).

Depending on the question's nature it is acceptable a variation of the answers, as at the same time retaining the accepted rating scale. In practical terms, it is recommended to approach carefully to the interpretation of grades.

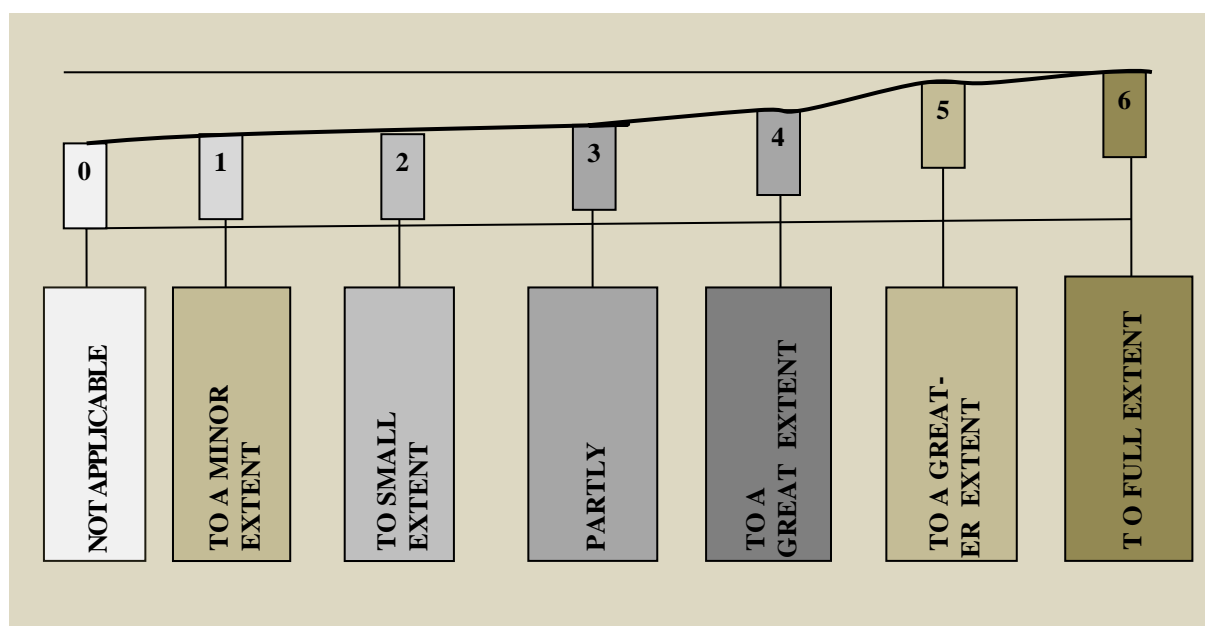


Fig. 3. Assessment scale

CONCLUSIONS

The above discussed issues highlight a number of features relating to product-market business strategies. This gives reasons to conclude that knowing the reviewed issues by managers would contribute to ensure the continuous development of LPS, where is an industrial specialization and vertical integration achieved through the value adding chain.

For the practical application of the presented product-market alternatives and competitive strategies it is necessary to take into account the influence of the macro environment factors, industry conditions and LPS's characteristics. The problems considered do not cover all the issues related to product-market business strategies. Due to the volume limitations, many of them are not presented in this paper. They will be subject of attention in a series of upcoming scientific publications.

The information presented in the study would be of interest to a number of stakeholders: owners, executives, managers and professionals associated with the LPS's activity, local and state agencies and others. The results obtained may be used as a basis for further scientific researches.

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ELECTRIC VEHICLES INDUSTRIAL CLUSTER – INNOVATION IN ACTION

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INTRODUCTION

Today challenges facing business are quite different than ten years ago. In today conditions the use of innovations as a source of competitive advantages turns from accidental business opportunity into the process important for survival and growth of organizations in a long-term period. The use of innovations has become a key factor for success not only for the companies operating in the field of high technology brands but for every company as well. The innovations have abruptly changed the direction of development of local production systems.

The transition of Bulgarian economy during 90`s of 20th century lead to the destruction of the existing industrial structures. The exact notion is really “destruction”, because those structures were working although ineffectively. The problem has many aspects. Ineffectiveness must be seen more in marketing aspect than technological one because production was intended for markets of the former socialist states in later degraded CMEA (Council for Mutual Economic Assistance). The majority of Bulgarian industrial companies were unfit for a highly competitive world market. However, the process took place spontaneously before re-thinking of the new role of the industry in the economy of the country and competitiveness of its regions (Houbenova-Delisivkova, 2013, p. 34). This destructive politics lead to the de-industrialization of the country and the necessity to find new ways for the increase of competitiveness and providing the long-term growth of the economy. Bulgaria has to face new challenges.

The challenges hold within them threats but also offer new, nonexistent to date possibilities. The aim of this research is by example of existing Bulgarian cluster – Electric Vehicles Industrial Cluster (EVIC) – to underline role of the innovations for successful functioning of companies and business networks of cluster type. The main thesis is that in today conditions importance of innovations as source of competitive advantages is bigger than historical inherited relations and structures in the frame of long existing local production systems. In other words, modern business networks of cluster type which are at the roof of economic growth and competitiveness both the regions and country’s economy, are much more dependent on ability of their members to create and integrated innovations than accumulated knowledge, experience and practice in the frame of traditional local production systems.

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THE NATURE OF INNOVATIONS

Innovations are extremely important for the normal functioning of any economic system under market conditions. It is particularly true for complex hierarchical systems of the type of national economies. In them, together with any others, there arises a problem of innovation processes management at different levels and that of the coordination of the politics at micro and macroeconomic level. Generally innovation strategies of corporations are tailored in so called development banks (only 8% of all developments reach their marketability), which could be:

- firstly, provided as licenses;
- secondly, rejected as technological outdated;
- thirdly, put into production and sale.

This leads to better economical indexes, on micro level – improving the competitiveness and efficiency of the company-innovator, on macro level – improving of basic indicators of national economy: real Gross Domestic Product, employment and labor productivity, external economic balance (increase in positive direction of the balance of foreign trade) and economic growth. The volume and the structure of intermediate consumption in innovation may change and the total material costs may decrease as well.

Changes connected with achievement of positive foreign trade balance, lead to increase of the export on account of the import. On positive value there is surplus of balance and avoid accumulation of trade deficit.

The increasing of gross product and positive foreign trade balance through introduced innovation, could lead to the change of the structure of employed manpower. Fluctuations in economic development, particularly the total growth in production, as well the increase of labor productivity will lead to the decrease of cyclical unemployment. But it may not be accurate (positive) sign about frictional and structural unemployment. For these types are supposed that there is discrepancy between demand and supply of labor on certain criteria – migration, outdated professions, requirements for new skills and knowledge. In the production involving high-tech and innovation there is change towards requirements for qualification, education and attitudes for work, improving of labor productivity suggest presence of new technologies.

Accumulation of the following positive factors – growth of intermediate consumption, produced/marketed gross production, positive foreign trade balance and decreasing of cyclical unemployment will lead to growth of the level of real Gross Domestic Product (GDP), increasing of total demand and supply and hence to the total growth of business activity and economic growth. Their influence however is not equal on the national economy:

- full employment – decreasing of unemployment lead to increasing of income and disorder of constant value of money and prices and to fast economic growth (overheating the economy);
- at politics of economic growth – there is rise of level of real GDP – this lead to rise of prices and money;
- external economic balance – positive balance of foreign trade lead to rise of real GDP and hence to disorder of constant value of money and prices.

Main macroeconomic goals, so called magic square include these four basic elements: 1) constant value of money and prices; 2) proportionate economic growth; 3) full employment and 4) external economic balance. These main goals are in constant conflict and cannot be achieve simultaneously and at the same time. That is why taking certain measures on macro level should be consistent with national politics as well as possibilities of certain market and its conditions. Therefore, problems pertaining innovation should be consider in the contexts of whole strategic vision for economic development.

In the specialized literature there are many different definitions of innovation. According to Georgiev and Tzvetkov (1997) innovation are investments, which pass through different phases and the final result is put into the market of product or service. Gruuhalgh & Rogers give another definition for innovation (2010), which states that innovation applies a new idea towards process or product which leads to creating value both for innovator and users of the innovation. Various researchers give their own definitions for the essence of the concept focusing on different aspects of its nature.

With this variety of definitions about innovation we can summarize which are the necessary elements certain invention to be innovative. Generally they can be narrowed to the following: idea, innovation, investment, process of creation and development, final result which brings benefits not only for its creators, but also for the consumers. It could be concluded that innovation is an idea for creation of novation which through necessary investments is applying to process, product or other aspect of company practice which results in improving of present or creation of new processes or products which brings benefits both its creator and those which needs it satisfies.

Creation of the innovation with all activities in fact is the innovation process. This process, depending on the goal, nature and type of innovation, could have different stages. There are many opinions in the specialized literature about how much and what are the phases of innovation process. Generally could be pointing out the following:

- Idea – beginning of every innovation is the idea of the new. The nature of the innovation suggests the existence of an idea, because it launches beginning of the new, unknown and missing;
- SWOT analysis (evaluate the Strengths, Weaknesses, Opportunities and Threats) – it is advisable before realization of innovation to be done analysis of strengths and weaknesses of the company innovator. This stage is not frequent in specialized literature concerning the innovation process but is necessary. This is because of the fact that in its nature innovation is an investment which is carried out with the purpose of creation of new profitable product or to change the process of production of already existing product, which in turn should lead to decreasing of company costs. Apart from status of the company, analysis should give information for opportunities for realization of innovation and level of the risk which company takes.
- Creation of the fundamental scientific knowledge regarding the idea – this stage requires finding professionals who should offer ways for realization of the idea. Depending on the area in which innovation can be applied may arise the need of competent persons outside of the company who with their knowledge and experience will establish a theoretical foundation of the project.
- Next stage requires practical application of the theoretical concepts. On this stage begins creation of prototypes of the product, respectively the process, shaping the view of the innovation and the way it operates. This is the stage of initial creation and realization of innovation.
- Integration of process or product – the stage on which innovation finds its practical application and start place the functions it is created for. On this stage it is understood if the idea is rightly done and if the benefits it should bring are present.
- Diffusion – according to this stage all professionals in the area of innovation are in one accord. Diffusion in its nature is spreading of the innovation; this is the stage of mass acceptance of innovation in the market.

It should be pointed that innovation, depending on different factors, could be divers in its nature. This leads to the existence of a considerable number of innovation classifications according to various indications. Most common classification of innovation is made according to their nature. In this indication frame there is different product and process innovation, but in various sources there are organizational and marketing innovations.

- The product innovation in its nature is integration of new product or considerable improvement of existing product or service.
- Process innovation is connected with creation or change of process which lead to improvement of manufacturing.
- The organizational innovation is carried out by change in organization. This lead to decreasing of administrative costs. This type of innovation can be addressed also to the process innovation.
- The marketing innovation is connected with the needs of the consumers and looking for better variants for satisfaction of these needs. These types of innovation also can be addressed to the process innovation, and not divided in separate category, but should be pointed that they are necessary and very important when the product innovation is spreading.

Other important classification of the innovation depends on the degree of innovation. In this aspect can be viewed radical and partial innovation. Rahmouni and Yildizogly (2011) define radical innovation as integration of new technologies which considerably change work pattern and productivity on most of activities. This changes concern not only the company innovator but also the market. These types of innovation are more risky but respectively change in the results is more significant. Same authors give definition of partial innovation as having progressive elements. These changes are consequence of radical innovation and help for improvement of technology. The goal is the adaptation of an innovation to certain sectors and markets.

Georgiev and Tzvetkov (1997) made classification of innovation as major, improved and pseudo innovation and every category also include subcategories.

Major categories in turns are divided of:

- Major innovation of great importance – characterized by the overall change in the people's needs where they concern product and significant changes of production system where they concern process.
- Major innovation of medium importance – intended for activities with application purpose. They reflected in creation of new needs to products and new branches where it concerns processes.
- Major innovation of less importance – have significant influence on needs and lead to creating of new industries.

The improved innovations are subdivided into:

- Improved innovation with big importance – have an important part in the activities connected with development of the innovation. Innovation related to processes become fundamental for creation of subbranches.
- Important improved innovation – at these types of innovation there are considerable change of demand or already existing and known products acquire various new characteristics.
- Normal improved innovation – their main aim is fundamental and applied research. They improve already existing products, assortment and processes.
- Evolutionary improvements – they are seen through little improvements of products or processes.

Pseudo innovations include:

- Unessential innovation which do not improve effectiveness of the product;
- Innovation which have positive influence on one process but have negative effect on overall activity.
- Innovation with positive influence in short term, but negative influence on overall company activity in long term.

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In general main idea for implementation of innovation is improvement in every aspect. The expected result is improvement for the company innovator, improvement regarding satisfaction of consumers and also companies which are external for the company organizer.

One process innovation related to innovator, for example, should reduce goods or services production costs which process of creation have been changed. As a consequence of reducing the costs inevitably will increase the profit. Even is possible situation where decreasing of the prices will lead to increase of sales and hence to increase of the profit. Another way for company innovator to increase the profit is through giving the patent to competitors. All this leads to the increase of satisfaction for consumers of goods or services because they buy it on lower price. It allows us to conclude that on microeconomic level one properly integrated innovation improves the results for both companies – innovator and consumers, as well as for its competitors.

The growth of consumption of given goods or services increases the total consumption of the country where innovation is integrated. Innovation as a whole leads to better economic indicators, because on local market goods and services are supplied on lower prices, which gives opportunity to innovators to offer on international market new product at product innovation, or offer already existing product on lower price at process innovation. All other matters being equal follows increase in positive way of foreign trade balance.

Apart from economic point of view, innovation have essential influence on way of life because allows ecological friendly production, possibility for consumers to get the desired goods and services on lower price and satisfy their needs with goods and services with better quality.

Contribution of innovation related with development of the science is indisputable. Every innovation has significant impact on scientific area in which it is implemented and it plays an important role regarding a motivation of the scientists who develop it, as well a motivation of people who has interests in the area.

Importance of innovation does not change the fact that they are difficult to be carried out by single company. There are many reasons for this, but main are connected with necessity of financial and human resources. That requires cooperation of people from different areas for the purpose of achieving the aim. For such cooperation clusters are a common form. At global level they are important source because of the fact that bring together sufficient number of representatives of certain industry which helps for gathering necessary resources of every kind for realization of certain innovative idea.

On 25.11.2009 in Bulgaria was registered Electric Vehicles Industrial Cluster (EVIC) as a private Non-profit organization. On the territory of Bulgaria the cluster is only one, which in the form of a professional organization operating in the field of electric mobility. Although the idea for creation of electric vehicle is as old as the idea for creation of automobile, the organization is the first in Bulgaria, which address the problem.

Electric vehicle is the car of modern era. Increasingly being spoken about environmental protection and reductions of harmful emissions, often is mention how harmful are gases left from internal combustion engines which in turns lead to creation of ecological friendly automobile – electric vehicle.

The idea for construction of electric vehicle belongs to Robert Anderson, and back in 1832 it becomes real. This is innovation it the area. Although electric vehicles have been manufactured for decades they continue to be product of long research and innovative techniques and even today electric vehicles are novation and in many cases – innovation. In our times the innovation become part of everyday life of every individual. The innovation is something common, it is present everywhere, but not always understood correctly.

Founders of Eclectic Vehicles Industrial Cluster in Bulgaria are:

- European Values Institute – Sofia – non-profit association which mission is transformation of socio – economic relations in the countries members of EU;

- Industrial Association – Petrich – regional body of the Bulgarian Industrial Association – Union of Bulgarian business;
- DI-VEN OOD (PLC) – Lom – company specialized in manufacturing and assembling of forklift trucks;
- TRANSPORT ELECTRONICS 91 OOD (PLC) – Plovdiv – company with main activity in research, design, construction, manufacturing and installing systems for electric vehicles driven by batteries;
- STRATEX OOD (PLC) – Sofia – company operating in the field of autonomous and reserve power supplies;
- EKITA COMPANY OOD (PLC) – Petrich – manufacturer of DC Motors for hydraulic systems and switchgear;
- VANIKO OOD (PLC) – Blagoevgrad – main activity of the company is manufacturing of machine parts, assemblies and machines, design and production of tooling (dies, molds, etc.), design technology and equipment;
- VJF OOD (PLC) – Sofia – offers a wide range of complete insulation systems, materials, tools, highly qualified advices;

At present moment members of EVIC are 50, and there are representatives from business, scientific and educational society and also from local authorities. They are as follows:

- AGENCY TRINITY M EOOD (PLC) – news agency;
- ADT BULGARIA AD (PLC) – company with scope of activity is security through modern technologies for monitoring;
- BAKER TILLY KLITOU AND PARTNERS OOD – Sofia – independent partner of BAKER TILLY INTERNATIONAL, which scope of activity is in the area of accounting and business consulting;
- BULGARIAN ACADEMY OF SCIENCES – honorary member of EVIC;
- BULGARIAN AUTOMOBILE CLUB “RETRO” – Sofia – club for fans of old cars;
- BULGARIAN CHAMBER OF TRANSPORT – Varna – non-profit NGO which main activity is towards transport sector;
- BULGARIAN GREEN BUILDING COUNCIL – Sofia – non-profit NGO which main activities are towards better quality of life in Bulgaria;
- BULMINERAL OOD (PLC) – Breznik – active in the area of delivery of resources and equipment for energy;
- WAGO KONTAKTECHNIK GMBH OOD (PLC) – Sofia – specializing in activities for production of metal items, analog and digital modules;
- VENDO SERVICE OOD (PLC) – Blagoevgrad – repairing of motorized vehicles;
- ”TODOR KABLESHKOV” UNIVERSITY OF TRANSPORT – Sofia
- DAYANE SYSTEMS – DIANA TONCHEVA – Sofia – supplies and installs systems for monitoring and control of technological process (SCADA) in oil product terminals, systems for local and remote control of hydroelectric power station and of wind power plants;
- GENEROUS AUTO (PLC) – Sofia – official representative of Chevrolet for Bulgaria;
- JOHNSON CONTROLS ELECTRONICS BULGARIA EOOD (PLC) – Sofia – company with wide scope of activities;
- EVN BULGARIA EAD (PLC) – Sofia – activities in the area of distribution and trading with electricity in Southeast Bulgaria;
- EUROPEAN POLYTECHNICAL UNIVERSITY – Pernik;
- ECO MOBILITY OOD (PLC) – Sofia – company specialized in sales of electric bikes, electric scooters and mopeds;

- ELMOTIVE OOD (PLC) – Sofia – main activity is import and distribution of electric vehicles;
- ENERGY 2 GO OOD (PLC) – Sofia – a battery consulting service in the area of electrochemical engineering, emphasizing on electrochemical energy storage and conversion, technology review and product development;
- ZEMEKO EOOD (PLC) – Sofia;
- INSTITUTE OF ELECTROCHEMISTRY AND ENERGY SYSTEMS – BAS;
- CAROSA EAD (PLC) – Sofia – main activities of the company are manufacturing of new vehicles and other machines and equipment, transformation of vehicles and other machines, buying goods, including vehicles, spare parts and accessories for them and etc.;
- GREEN ENERGY CONSORTIUM – Sofia – autonomous photo voltaic station installed in Sofia;
- QAC OOD (PLC) – Sofia – offer consultant services in the area of standardization, conformity assessment, certification, audit, testing and etc.;
- LUKOIL BULGARIA EOOD (PLC) – Sofia – leader in the sales and distribution of high-quality fuels, polymers and petrochemicals;
- MIEL (PLC) – Sofia – traveling and events company, member of World Association of Travel Agencies;
- MKB UNIONBANK – Sofia – credit institution;
- MONBAT AD (PLC) – Montana – manufacturer of lead-acid batteries for various applications;
- PASSAT BULGARIA AD (JSK) – Tcarevo – manufacturing a variety of fiber glass products;
- PETAR YOVCHEV AND SONS OOD (PLC) – Yambol – school for drivers of motorized vehicles;
- TECHNICAL UNIVERSITY – Sofia;
- TRASNPORTELECTRONICS 91 OOD (PLC) – Plovdiv – engineering company established with the main purpose to realize the relations between Bulgarian manufacturers and worldwide approved manufacturers of modern highly technological electronic devices;
- 3SD EOOD (PLC) – Sofia – active in the area of fibreglassed products, car design, furniture design and graphic design;
- UNIVERSITY “ANGEL KANCHEV” – Ruse;
- FILKAB AD (JSCo) – Plovdiv – company with wide scope of activities related with design, production, delivery, installation and commissioning of electrical equipment and automation of all types of construction sites, power lines and facilities for the industry, construction and projects with RES;
- HAYCAD INFOTECH (PLC) – Plovdiv – the first certified reseller of the products of Dassault Systèmes, company specialized in engineering 3D design, engineering analysis and data management;
- CEZ BULGARIA EAD (PLC) – Sofia – main activity is generating, sale, distribution of electricity and thermal energy;
- SCHRACK TECHNIK EOOD (PLC) – Sofia – specialized in area for products and solutions for energy transfer and data exchange;
- NATIONAL ASSOCIATION OF MUNICIPALITIES IN THE REPUBLIC OF BULGARIA – Sofia – non-profit organization;
- NATIONAL CENTRE FOR REGIONAL DEVELOPMENT /NCRD/ – Sofia – company for consulting and designing to Ministry of Regional Development;

- DOBRICH MUNICIPALITY;
- LOVECH MUNICIPALITY;
- MONTANA MUNICIPALITY;
- PLOVDIV MUNICIPALITY;
- RUSE MUNICIPALITY;
- PROFESSIONAL SCHOOL OF AGRICULTURE, FORESTRY AND TOURISM "N. VAPTZAROV" – Chepelare;
- REGIONAL ASSOCIATION OF MUNICIPALITIES "CENTER" – Area Sofia – represent 11 municipalities from Sofia and the region. Their activity is towards improvement of transport accessibility, ecology and city environment;
- SVHS "JOHN ATANASOFF" – Sofia;
- TECHNICAL UNIVERSITY – Gabrovo;
- TRAKIA UNIVERSITY – FACULTY OF ENGINEERING AND TECHNOLOGY' – Yambol;
- "PROF. ASSEN ZLATAROV" UNIVERSITY – Bourgas;
- SCHOOL FACILITIES – SLIVEN TO TU – Sofia;

Apart from these members and partners in cluster take part some individuals. It should be pointed that members of the cluster and especially these representing the business that majority are newly founded.

The object of the organization is laid in the Statute and one of the main priorities is "transfer and integration of innovative solutions and know-how" (Statute of EVIC, 2009). The cluster is also active in the field of improvement of human resources in the area of electric mobility, creation of partnerships for achieving various goals, organizing scientific forums, transfer of technologies, creating of new productions to increase competitiveness of the industry, participation and support administrative bodies in creation of regulations, rules and standards in the industry and etc.

In the presentation of the cluster from 2012 are stated its main goals (For EVIC, 2012), which are divided as prospective and mid-term.

The prospective goals will be executed after 2015 and they are related to: sustainability of the competitiveness of the EMIC members and environmental protection in compliance with EU regulations.

Mid-term goals are the results which are expected to be achieved during 2012–2013 and they are:

- Development and promotion to big industrial, courier, logistic and construction companies of investment projects for technological modernization and integration of innovation for decreasing energy-intensive of transportation and production;
- Development and promotion of investment projects to strategic investors for increasing of energy efficiency and integration of production for alternative energy;
- Implementation of programs and projects for improving the work conditions in the companies, members of the cluster;
- Improving the educational system and qualification in order to meet the needs of the cluster network. (For EVIC, 2012).

For achieving its goals the cluster is aided by the government. Recent example is a proposal of support for buying electric vehicle with once-only contribution by the state and tax reductions for the owners of this type of vehicles. There will be incentives for legal persons participants in country's "green industry". With the participation of the cluster is expected complement of legislation and encouraging possibilities for public private partnership in the area.

With the support of scientific society in the area in which cluster is developed as well the support of the government EVIC has strong trend towards innovation. Confirmation for this is in the definition of innovation. Activity of the cluster is aimed to implementation of the idea for creation and realization of new products in the area of electric vehicles by making investments not limited only to funds. For creation and development of the product as well the process, the whole process undergoes several stages. The result brings benefits to more than one person not only through profit but also with benefits concerning environmental protection, improvement of human resources and etc.

Product innovation take a big part in cluster activity, although electric vehicles exist for centuries, there are much to be done for achieving of desired state and turning electric vehicle into what is today the automobile with combustion engine. At the present, in the world of electric cars innovation the emphasis is towards creation of different types of electric station for charging of electric vehicles. EVIC has own development which works via 3G connection provided by mobile operators.

In innovative industry in terms of product as well as processes this product is created EVIC is necessity. Although automobile industry exists for centuries and electric vehicles are not something new, they are still not in mass production. This requires their constant improvement and creation of new technologies. This innovation will lead to positive results in social sphere, ecology, competitiveness on national level and etc.

STRUCTURES PRIOR TO EVIC

Success of the cluster is undisputed. For our research of great interests is the fact that EVIC could be seen as the follower of long tradition. It is about leading place of Bulgarian state companies in the past in the world market for electric forklifts¹. We want to speak not only for separate companies but for purposeful government policy. It was aimed not simply to achievement of economic results but planned development of country regions. Despite the fact that there were hierarchal connections between companies govern by the state, economic results are impressive. In fact, during the years of central planning Bulgaria is among the world leaders in manufacturing of forklifts. Under brand name “Balkancar” were produced and export bigger number of electric trucks and forklift trucks than American brand “Klark” and Japanese “Toyota”. The beginning of these processes laid back in 1952 when first experimental series of carrying and lifting machines was developed. Since then branch constantly grow and in the end of 1970s of last century our country become world leader in forklifts production. In the late 1980s following political and economic changes in former Soviet Union and Eastern bloc, state company “Balkancar” ceased to exist. Structural changes started before the beginning of the transition from planned to market economy gradually lead to decline of Bulgarian forklifts manufacturing.

The idea for forklifts production in Bulgaria emerges in the beginning of 1950s of 20th century. Realization of the ideas begins in 1952. That year is developed the first experimental series of Bulgarian platform electric forklifts – total number of 5. Then in 1955 another series is produced and next year during 7th session of Council for Mutual Economic Assistance (CMEA) our country receives specialization for production of trackless carrying and lifting electric machines. Based on this decision in 1957 begins production of forklifts. Beginning is set in Sofia’s September 6th factory which then manufacturing trams and trolleybuses. In preparation for production of the machines, Bulgarian specialists were sent for training in Děčín, Czechoslovakia at that time is major manufacturer of

¹ The history of Bulgarian forklift production is based on the article “How Bulgaria was the world leader in the production of forklifts”, Bulgarian History, 2013, <http://www.bulgarianhistory.org/>.

electric forklifts. The production begins in old production facilities of September 6th factory. Later, in the beginning of 1960's already working forklifts production factory was moved. Its new facilities and equipment were built with assistance of French automobile giant "Renault".

Export of the new production begins in 1957. In Czechoslovakia and USSR were sold 150 platform electric forklifts. In 1958 was sealed first major export trade with carrying and lifting machines. Shipment of 3000 machines was exported to China. Same year begins production of new type forklifts – highlifters. They were produced in September 6th factory, and production of lowlifters and platform electric forklifts was moved to factory Sredetz – Sofia, former Zavod 12 (factory for military production).

In the beginning of 1960s Bulgarian forklifts production structure continue to expand. In city Lom was open factory "Dunav". There were specialization in production of platform trucks and tow tractors. Its capacity is for 15000–18000 machines a year. State company opens a new division in Vratsa, where in former cart workshop begins production of special type electric forklifts - with manual steering. Later factory "Vit", Pleven takes up this production. There also begins production of forklift trucks. Average annual production in Pleven's factory is 8500–9500 forklifts. One look to the map of the country allows you to see the strategic plan of forklift production for social-economic development of the country. It is clear how production launched in Sofia is transferred to the north part of the country and ports of Danube River where export took place. The development of the production in these regions has strong positive influence on their economic and social characteristics. Today, years after collapse of described economic systems, the problems of these regions of the country are very serious. For example, the northwest region which includes Lom is known as the least developed region in Europe.

The regions of the south part of the country are integral part of production system. The most famous factory is "Record" in Plovdiv. It was founded in the beginning of 1970s and specialized in forklifts truck production.

Volume of the production constantly increase and specialization of Bulgaria in this field of engineering grows. In 1963 are founded Institute of electric and forklift trucks then unique scientific-research and engineering organization in the world. Analogy with the modern cluster is clearly seen. Later on, the first state economic company (DSO – state structure which can be defined as industrial-financial holding) is born. It is called SEC "Transport engineering" with main activity production of lifting and handling equipment. Subsequently other state economic companies arouse, for example SEC "Hydraulics" in Kazanlak.

The branch "Balkancar" appears in the late 1960s. Its logo however became reason for international litigation. After the beginning of the forklifts export to the Western countries it turned out that the Belgium company trading on international markets had registered almost identical trade mark. The case was referred to court and the foreign company tried to force "Balkancar" to change its logo. One of the best lawyers in the country presented the Bulgarian party at issue and he proved that the mark of the Bulgarian company significantly differed from that of the Belgium one. So, the company retained its logo. Part of the structure of the state company "Balkancar" were five assembly plants, companies for production of intermediate products used in production of electric and forklifts trucks. In the late 1980s company had 39 divisions – 31 in the country and 8 abroad. Factories produce busses, cars, bikes and etc.

Number of lifting and handling equipment made in Bulgaria every year on increase. In 1978 country is world leader in total volume of production and forklift export – about 89 000. Our country kept that position for several years. For comparison, then all European countries together produce about 17000–18000 similar machines per year. In 1988 Bulgaria produce 1/5 of world production of electric forklifts and forklifts trucks and per capita takes first place in the world (82500 per year). In 1986 by absolute production of electric forklifts and forklift trucks our country is third in the world:

First place is for FRG – 113700; second place is for Japan – 111600; third place for Bulgaria – 84 800 but we were ahead of USA with only 50000. According to Statistical Yearbook from 1991 for the period 1981–1990 about 90% of the production is exported. In the period 1984–1990 Bulgarian part in the export of total world production of electric forklifts and forklift trucks is 17%.

Main part of production of Bulgarian electric forklifts and forklift trucks is exported. On average every year the production is about 70000–75000 machines. Most of them (about 60000) went to USSR. Between 5000 and 6000 are exported for German Democratic Republic (GDR). For the countries outside ECMA are exported about 4500 machines per year. There were export to Great Britain, France, Spain, Italy, Federal Republic of Germany (FRG), Egypt, Singapore and etc. In turn of the export of forklifts for the countries members of ECMA Bulgaria import oil, gas and metal on lower prices. In fact, this trade brings only profit for Bulgaria. The exported machines not always are with good quality because of the lack of competitiveness and contracted numbers anyways are bought from former socialist countries. In turns Bulgaria receives goods which are competitive even on the western markets.

Besides fortieth factories in the country which made production under the mark of “Balkancar”, begins cooperation in production of forklifts in different parts of the world – China, Iran, Cuba, PRK, Turkey, Algeria, Yugoslavia, Nigeria. In late 1980s “Balkancar” production has totaling about 1.4 billion rubles.

1987 marks the beginning of the end for “Balkancar”. Companies which made intermediate products necessary for production of forklifts are taken out of its structure. This causes problem with the delivery of necessary parts and also untimely and inaccurate performance. Apparently, administration by the state of connection between factories is ineffective. There is lack of normal market relations. In the end, forklifts production is gradually reduced and in late 1990s are barely 2000–3000 items a year.

Before 1990 there are 40000 employees in the branch. Among other assets, SEC “Balkancar” owns many estates in the country and abroad – administrative buildings, production facilities, recreational facilities and etc.

Today transport engineering is destroyed and forklifts production is significantly decreased.

The example with forklifts production in Bulgaria as progenitor of electric vehicles cluster is good example of the area for growth and development of the clusters. It gives idea for both advantages and disadvantages of state’s administration of economic relations between companies and the challenges and prospective before structures of cluster type.

It is obvious, that despite successes and achievements of the past, the gained experience is inapplicable today. Rethinking in the light of new realities is more than necessary. Bonding of the strategic plans of the leading business organizations with the perspective for economic and social development of the regions and their local production systems is necessary. Still, the most appropriate ways for achieving this goal, are not found. Planned economy in the past allows solving tasks of extremely large scale. In forklifts production and electric forklift production in particular there are common strategy which bonds together many different processes. Begins with raw materials (having necessary for the batteries explorations of non-ferrous metals), then building of production facilities and research and design departments, all connected in overall vision for sector development. This vision is coordinated with plan perspective for social-economic development of country regions. Strong side of this approach is at the same time prerequisite for serious contradictions. The leading position of administrative approach and ignoring of economic interests of participating businesses gradually leads to economic ineffectiveness. At first, having factors with extensive character, command-administrative approach of state authorities gives good results. Later, with arousing necessity of mobilization of intensive factors for development, economic stimulus became much more effective as instruments of intervention. Unfortunately, command-administrative system does not have such instruments or namely, distort connections between endpoints and economic in-

terests of the members. Even before political changes of 1990s SEC “Balkancar” was large and ineffective economic structure. Historical logic points that economically ineffective system lead to collapse of the political not vice versa.

In the networks of cluster type are set serious contradictions, but they are of opposite character. The good feature of cluster networks is that they are very flexible instrument for coordination economic interests of their members, and hence intervention in development of the local production systems and the regions. Other side of this flexibility is big level of freedom of the members and often possibilities for intervention aimed coordination of actions are limited.

It is obvious that innovation should be sought in all areas – both technological and creation of new organizational forms for cooperation of interested participants. According to authors of this research, in Bulgaria has big potential for developing of subjects of social economy. Extensive experience how state sector works in the past and liberal market relations today shows existence of ill developed field between them. We speak about third sector of economy or as it named in the industrialized countries, third system in the frame of national economy. The clusters are created and work in this context. Creation of structures of social economy sphere which are joint link for all other organizations in the network. Relevant structures mandatory follows provisions of the legislation. For example, in Bulgaria the law provides two express rules for establishment of entities of social economy and several flexible. The latter are not provide by the legislator as instruments for creation of social-economy entities, but could (at certain conditions and compliance with the informal rules) to be used for the purpose. The possibilities for establishment of typical for social economy entities are included in Cooperative Law and Law for the Non-profit Corporate Bodies (legal entities). EVIC, for example, was registered as a private non-profit organization under the Law for the Non-profit Corporate Bodies. Entities of social economy can be established as civil law companies under Law of Obligations and Contracts, consortiums under the Commercial Law and etc. It is clear that operating clusters in Bulgaria, despite the form of organization have severe shortage of social capital. This is one of the reasons for disinterest by the organizations for participation in network structures of cluster type, so they have to be attracting to participate by projects, subsidies and etc. This may be is a serious indicator for problem that third system in Bulgarian does not functioning adequately and not creating social capital necessary for the normal economic processes. This is just a hypothesis whose validity could be subject of very interesting future research.

CONCLUSIONS

In today's conditions the clusters are vital form for generating of economic growth. They can be used for directing of economic processes within local production systems, to insert influence on the development of regions in contexts of general politics of EU and etc. The practice shows that effective management of innovation is more important for the clusters, than historical inherited structures, experience and good practices of local production systems in the past, which are “parents” of the clusters.

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THE CLUSTER APPROACH TO CORPORATE SOCIAL RESPONSIBILITY: A CASE STUDY OF THE BULGARIAN MINING CLUSTER “SREDNOGORIE MED”

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Clusters are often built around endogenous regional potential and this may enhance regional identity and the participation of stakeholders in the process of sustainable regional development. The academic theory and practice in the area of clusters mainly focus on the economic advantage of clusters and to a great extent their importance for the competitiveness of the region's economy is undeniable. However little is known about their impact on society and the environment.

The main research question in this article is how the advantages, resulting from local embeddedness and spatial proximity, strategic cooperation and constructive competition, as well as the considerable influence of external players can be used to promote responsible business practices and joint CSR activities.

The answer to the research question is based on an extensive theoretical discussion and practical research done by the author. The article highlights the nature of the concept of corporate social responsibility (CSR) and its evolution, reveals the relationship between corporate social responsibility and clusters, their potential and advantages/benefits for promoting socially responsible behaviour. The practical application of the cluster approach to CSR is illustrated by the Bulgarian mining cluster “Srednogie Med”. The study has been conducted based on secondary data (periodicals and the Internet), as well as personal interviews with representatives of the cluster. The conclusions and recommendations that have been made outline the direction of future development of the “Srednogie Med” cluster in CSR.

INTRODUCTION

CSR is defined in many different ways (Dahlsrud A., 2008) and the notion of its nature varies from its full denial (Friedman, 1970 – the responsibility of business is only one – to increase profits, Friedman argues) to its acceptance as an element of the strategy of the organization and a source of competitive advantage. For decades CSR has been seen as a concept of the voluntary participation of businesses in the development of a better society and a cleaner environment. According to the EU definition, most commonly used in academic and practical research, on a voluntary basis companies integrate their care for society and the environment in their business operations and in their relationships with stakeholders beyond their legal obligations (EU, 2001). In its latest communication about CSR of October 2011, the European Commission changed the focus in the definition of CSR – from the origin of the socially responsible behaviour of businesses the focus was moved to the very behaviour. The EU defines CSR as: “the responsibility of enterprises for their impacts on society” and states that enterprises should have “a process in place to integrate social, environmental, ethical human rights and consumer concerns into their business operations and core strategy in close co-operation with stakeholders”, whilst complying with legislation. (European Commission, 2011, p. 6)

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According to research the positive effects of CSR can also be improved if to the socially responsible practices of a company are added the efforts of other businesses, civil society and the public sector. This concept (known as the cluster approach to CSR) assumes that the grouping of companies, located on the same territory, will interact with each other and with other locals, to optimize the practices that contribute to the sustainable development of the region, a more integrated and global perspective. The adoption of social goals, shared by the different entities that form the cluster, can improve the development of corporate social initiatives that go beyond the activities of the individual company and create many benefits for local communities. Clusters are a specific form of cooperation that has increasingly gained importance in recent years. They can be defined as geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions, which are interacting on a vertical, horizontal and diagonal dimension and are further embedded in global production networks (Porter, 2000).

The various potential opportunities for promoting CSR in the region arise from the specific features of the cluster:

- Strong regional relation and spatial proximity;
- Interconnected businesses in related industries;
- Large influence of institutions, NGOs and governments;
- Integration into global production networks.

This study contributes to the clarification of the relationship between CSR and clusters and answers the question of how the specific features of clusters can help embed and implement CSR. The application of the cluster approach to CSR has been illustrated by the case study of the Bulgarian mining industrial cluster “Srednogorie Med”. The analysis, conclusions and recommendations have been made based on information gathered about the CSR initiatives of the cluster from periodicals and the Internet, as well as personal interviews with representatives of the cluster.

EVOLUTION OF APPROACHES TO CSR

The integration of CSR into the way companies do their business is an important stage in the development of corporate social responsibility that began over a decade ago (White, 2005). In academic theory and practice the concept is gaining ground, to which we also adhere, that CSR can create value for companies when it is integrated into their operating activities, when corporate social activities are part of the organisation's strategy and are related to its objectives. The conclusions of conducted research show that the company can add value and obtain competitive advantage through CSR activities, but it should act strategically and CSR should be related to corporate strategies. The dominant paradigm at the basis of corporate social responsibility now is focused on the idea of creating “shared value”. The role of business, according to this model, is to create value for its shareholders, but in such a way that it also creates value for society which is expressed as a win-win proposal (Porter M. and Kramer M., 2011).

Addressing the issue of CSR in the interest of business and society is also part of the updated CSR strategy of the EU. The implementation of a strategic approach to CSR is increasingly important for the competitiveness of companies. It can bring benefits in terms of risk management, cost reduction, access to capital, customer relations, human resources management and innovative capacity (EU, 2011). The main directions, in which the European Commission sees CSR development with reference to the strategic approach, as a whole, are the following:

Compliance with corporate social responsibility requires a mechanism by means of which companies can integrate social and environmental issues, ethics, human rights and the rights of consumers into their business operations and core strategy, in close collaboration with their stakeholders. Thus businesses can optimize the creation of common values, benefits for their shareholders/owners and other stakeholders, as well as for society as a whole. This is how companies can identify, prevent and mitigate possible adverse effects. To achieve common values, “shared value” (author’s note – I.S.), companies need to adopt a long-term strategic approach to CSR and to explore the opportunities for developing innovative products, services and business models that contribute to public prosperity and the creation of high-quality and more productive jobs (EU, 2011, p. 6).

The extent, to which CSR is integrated into business, has recently come to the foreground again in the context of the impact of the global financial crisis. One suggestion, for example, is that the impact of the global economic crisis on CSR would not be so strong when the latter is closely integrated into business operations, whereas when it is less integrated, the crisis could lead to cuts in CSR budgets and staff (Shergold, 2009). “If there is one thing that the financial crisis and stock market crash of 2008 should have taught us, it is that short-run share prices are an unreliable indicator of long-run business sustainability,” says Orts. “The idea, that companies don’t have any independent ethical responsibility for the consequences of their impact on the environment and society, just doesn’t make any sense. It is an outmoded view to say that one must rely only on the government and regulation to police business responsibilities. What we need is re-conception of what the purpose of business is.” (Orts, 2011, p. 203)

Against the background of the ongoing recession, which took the initiative for corporate profits and increased pressure from shareholders, companies are creating new models of CSR. Rather than have a modest CSR department, many companies are trying to embed CSR into their business operations. It is believed that CSR needs to be improved and for companies to take an active CSR, it should be integrated into the company’s activities. Through the various types of work that companies offer, the types of products they produce and the ways in which they use resources, they can have a positive effect on society and the environment, achieving their economic objectives.” (Orts, 2011, p. 198)

This approach interprets CSR as “socially responsible capitalism”. On the corporate level business objectives should be both maximizing share value in the long term and addressing the major problems of society. This makes it necessary for each initiative of CSR to be an integral part of business strategy.

Assuming that “corporations are not responsible for all the world’s problems, nor do they have the resources to solve them all” (Porter and Kramer, 2006, p. 92), we believe that companies can use CSR to build competitive advantage and create shared value. By carefully prioritizing the needs of their stakeholders, companies can focus their activities on those needs, doing it in a very strategic way. The long-term perspective on CSR leads to transition/shift from CSR to “corporate social integration”, with success for the company and society becoming “mutually reinforcing” (Porter and Kramer, 2006, p. 92). According to Zadek, for the companies in which CSR is embedded, it is not difficult to meet the new expectations of the market, such as fighting competition, human rights, environmental management in the supply chain, etc. The same author presents the evolution in CSR in its three generations (Figure 1).

The first generation of CSR is characterized by a limited number of business cases. Activities are mainly marginal for the business and costs are insignificant. The basic form of CSR is donations for various social causes. The second generation requires a more serious analysis of the costs and benefits from corporate responsibility, a close integration into the overall business model for success. Responsibility at this level involves more serious intentions for corporate support of social causes, the setting aside of more funds,

higher risks and almost certainly higher costs. Also, profit margins are more sustainable, whether this is achieved by protecting and enhancing corporate reputation or through innovation in products and services and business processes.

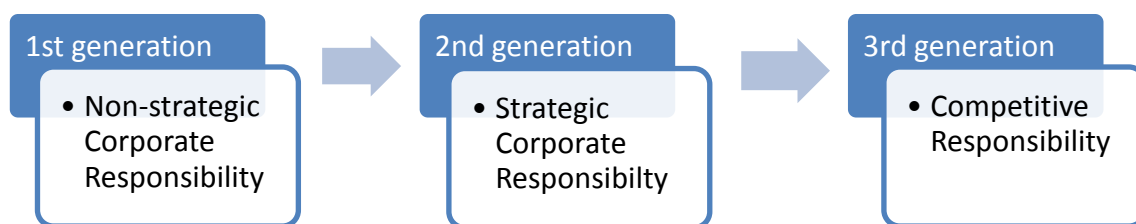


Fig. 1. Generations of Corporate Responsibility (Zadek, 2003, p.10)

“Third generation” corporate responsibility appears to be a stage in which companies and their stakeholders recognize the need for collective action. The model of the third generation recognizes the importance of a business case for corporate responsibility, however not simply to react/respond to the possibilities of “doing well by doing good” but to remould markets to ensure that responsible companies make profit on the commodity, labour and financial markets. To achieve this, corporate responsibility should go beyond the activities of individual companies, corporate social initiatives should be carried out not by an individual company on its own but in close cooperation with other stakeholders. The third generation of corporate responsibility requires businesses to establish communication and partnership with relevant stakeholders for the formation of markets in such ways as to promote the responsible companies and sanction the rest. Public policies have a key role in this respect.¹ The characteristics of the different generations of CSR show that at each stage of the development of CSR different tools and processes are made use of. These are presented in compact form in table 1.

Table 1

Generations of Corporate Responsibility

	Tools & Processes
3rd Generation Competitive Responsibility	Multi-stakeholder standards and partnerships, Responsibility institution building, CR-oriented advocacy and public policy, alignment with national competitiveness
2nd Generation Strategic Corporate Responsibility	Sustainability management, sustainability auditing and reporting stakeholder dialogue, social investment
1st Generation Non-strategic Corporate Responsibility	Philanthropy, short-term risk management, industry standards.
Legal Compliance	Regulation covering tax, health and safety, workers rights, consumer rights, environmental regulations.

Source: Zadek S., Sabapathy J., at al. Responsible Competitiveness, Corporate Responsibility Clusters in Action, Accountability & the Copenhagen Centre, January, 2003, p. 10

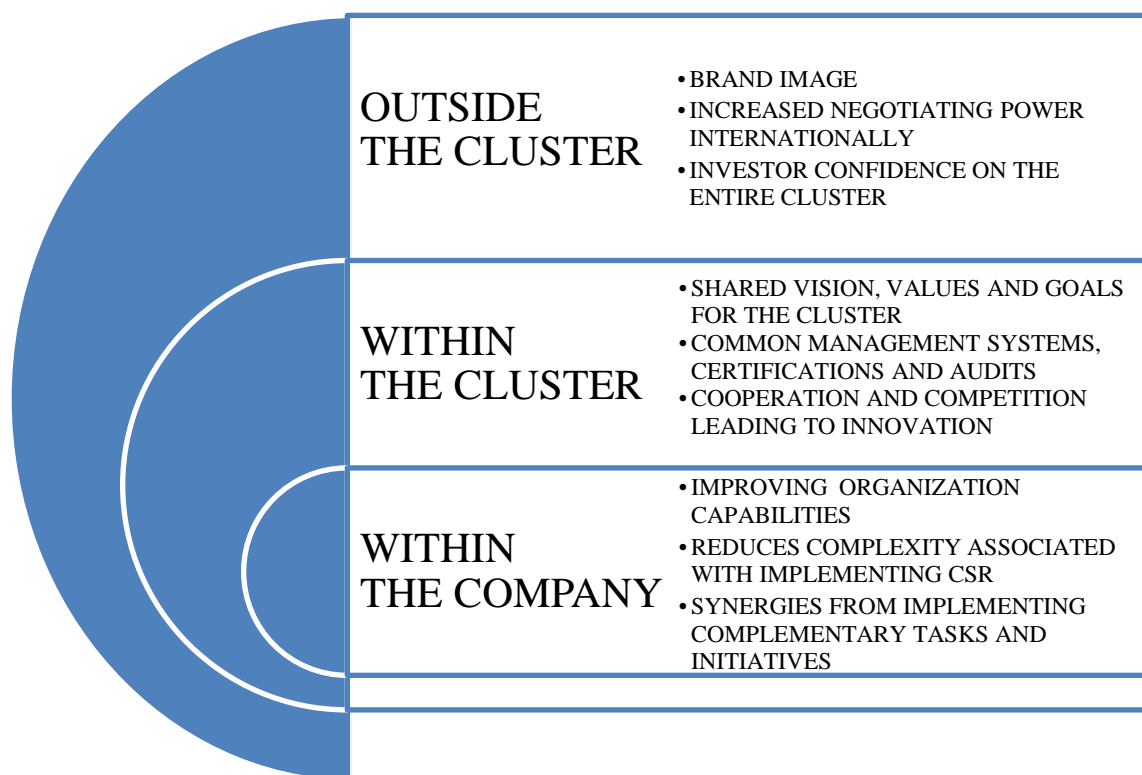
¹ Slavova I. Corporate Social Responsibility and Public Policy: Focus and Trends in Bulgaria, magazine “Economic and social alternatives”, University of National and World Economy, No 1, 2013.

THE CLUSTER APPROACH TO CSR

To promote responsible business practices and joint CSR activities, advantages can be used, resulting from local embeddedness and spatial proximity, strategic cooperation and constructive competition, as well as the considerable influence of external actors and integration into global production networks. Local clusters promote the development of socially responsible behaviour and joint CSR activities; they create potential opportunities for increased benefits, both for companies and society.

Clusters are often built around endogenous regional potential and this may enhance regional identity and the participation of stakeholders in the process of sustainable regional development. The cluster approach promotes the formation of stable cooperation and networks and the removal of barriers to the implementation of the international standards for sustainability. While collaborating within a group, companies are able to share knowledge, to conduct joint training and promote innovation, thereby increasing efficiency and the standard of life. Local governments, educational institutions, as well as non-governmental organizations and civil society have a significant impact on the activities of clusters and can promote responsible business practices.

The benefits of implementing the cluster approach to CSR occur at different levels – micro perspective (within the company), meso perspective (within the cluster) and macro perspective (outside the cluster), which are generally presented in figure 2.



Source: adopted by Høivik W., Shankar D. Corporate Social Responsibility (CSR): A Participatory Approach to Implementing CSR in a Cluster, 2010.

Fig. 2. Benefits of the cluster approach to CSR

M. Porter considers the creation of local clusters as one of the ways in which the company can create “shared value”¹. This is achieved by improving the existing skills, suppliers and supporting institutions in the region. The development of local clusters enhances the connection between a company's success and the success of society. A strong local cluster improves company productivity and growth through local suppliers, related industries, supporting institutions and infrastructure. Working together companies can catalyse major improvements in the cluster and the local business environment.

The cluster approach to CSR is seen as a means of increasing competitiveness and sustainable development. According to Zadek “Corporate responsibility clusters’ offer the potential for linking and scaling up company-level corporate responsibility practices and outcomes, to create a broader impact on competitiveness and sustainable development. The potential for ‘corporate responsibility clusters’ has been identified as creating competitive advantage within one or several sectors arising through interactions between the business community, labour organisations and wider civil society, and the public sector focused on the enhancement of corporate responsibility” (Zadek, 2003, p. 23).

Corporate responsibility clusters appear in different shapes, sizes and types with different kinds of organizations, leading their development. What they have in common, however, are their major effects on business performance: expanding the ability of businesses to learn from various, rich sources, increasing competences to translate this knowledge into improving performance; receiving support from a growing network of providers of services which enables companies to manage their relationships and reputation more efficiently and creates benefits from implementing public policies that have an impact on the market, so as to reward responsible practices.

The cluster approach to CSR increases the potential benefits by obtaining synergy/synergistic effects resulting from the interaction between companies and other participants in society (with stakeholders). To a large extent these effects depend on the vitality of civil society organizations for raising social awareness and responsiveness. At any time this can be directed at individual companies or industries. But with time this vitality expands, it is in fact enhanced by the great success of these individual initiatives. This also applies to public bodies/public institutions and service providers that develop capacities that can be widely applied in the course of time, both with the collective and individual effects.

IMPLEMENTATION OF THE CLUSTER APPROACH TO CSR IN THE “SREDNOGORIE MED” MINING CLUSTER

Presentation of “Srednogie Med” cluster. The cluster “Srednogie Med” was established on an industrial regional basis on the initiative of the big industrial companies of the Central Srednogie region “Assarel Medet AD”, “Aurubis Bulgaria AD”, “Elatsite Med AD” and “Dundee Precious Metals Chelopech”². The cluster includes mainly the companies for the mining and processing of copper- and gold-containing ores, located on the territory of Central Sredna Gora, the companies serving the industrial production and local officials.

¹ In his article “Creating Shared Value” Porter distinguishes between CSR and the creation of shared value and defines the creation of shared value as a new stage in the role of businesses for social and economic development.

² In 2005 the non-profit organisation “Srednogie Med” industrial cluster was registered. The members of the cluster are: “Assarel – Medet AD”, “Aurubis Bulgaria AD”, “Elatsite Med AD”, “Dundee Precious Metals Chelopech” and “Geotechmin OOD”, “Optix AD”, “Opticoelectron AD”, “Eurotest-Control EAD”, “Erlikit Bulgaria EOOD”, “Energeo EOOD”, Panagyurishte Municipality, Pirdop Municipality, Zlatitsa Municipality, Mirkovo Municipality, Chelopech Municipality, Chavdar Municipality, Anton Municipality and Strelcha Municipality. Partners: the Bulgarian Chamber of Mining and Geology, Sofia University “St. Kliment Ohridski”, The University of Mining and Geology “St.Ivan Rilski”

The long experience, history¹ and traditions in the mining and processing of copper- and gold-containing ores in the region contribute to the regional identity of the “Srednogie Med” cluster. The mining companies of the cluster are leaders in the Bulgarian mining industry and a key factor for the socio-economic development of the municipalities on the territory of which they are situated (Pirdop, Panagyurishte, Chelopech, Zlatitsa, Mirkovo, Chavdar, Anton and Strelcha). They are structurally important for the Bulgarian economy, with a significant contribution to the gross domestic product of the country and the development of technological innovation. Cluster members generate nearly 8% of the gross domestic product and provide over 5,000 jobs. By developing and implementing technological innovations, the mining companies create know-how and professional potential that develops and remains within the country. Thus an environment is built, which promotes the development of new mining and metallurgical technologies, both in experimental and industrial conditions. The mining and processing of copper and copper-gold ores within the cluster is carried out in accordance with the three major international standards – for quality management systems (ISO 9001), environmental management (ISO 14001) and for healthy and safe management systems (OHSAS 18001).

Cluster members contribute to the development of the mining industry not only by their production activities, technological innovation and social responsibility, but also by their active participation in the activities of “The Bulgarian Chamber of Mining and Geology”, “The Scientific and Technical Union of Mining, Geology and Metals”, “The Association of Entrepreneurs” in Panagyurishte, etc. “The Bulgarian Chamber of Mining and Geology”, chaired by the CEO of “Assarel Medet”, is developing voluntary standards for the sustainable development of the mineral raw materials industry. An acknowledgment of the contribution of the companies in the cluster to the development of the country, the region and the industry, as well as of their active corporate social responsibility are the numerous awards they have received – Corporate Donor of the Year, Investor of the Year, Socially Responsible Company, Best Employer in Bulgaria, Investor in the Environment, etc. “Assarel Medet AD” (a member of the Global Compact since 2003) was included in an international collection of good practices in corporate social responsibility.

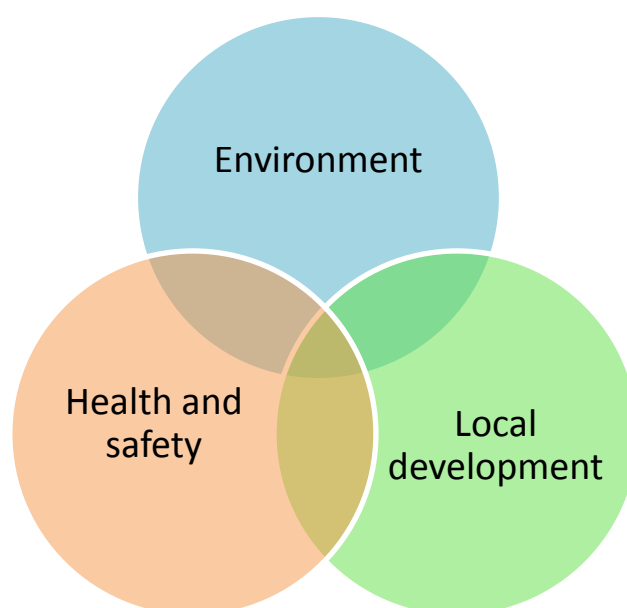


Fig. 3. Main areas of CSR of “Srednogie Med” cluster

¹ Ore mining in the region started after the World War II. In the early 1950ies the development of the Medet, Elatsite and Assarel porphyry copper deposits started.

The corporate social responsibility of “Srednogorie Med” cluster. The social and environmental impact of business varies widely depending on the industry in which it operates and the geographic range. This is why the focus in CSR agendas is different. “Srednogorie Med” cluster focuses its efforts on areas, directly related to the activities of the companies (the mining and processing of copper and gold-containing ores), thus creating benefits both for business and society. The three main areas of CSR, having a priority for each of the mining companies and set out in the objectives of the cluster are: improving the environment, creating healthy and safe work environment and developing local economy (Figure 3). The policies on environmental protection and working conditions are to set and meet higher requirements than the ones provided for by legislation or regulations.¹

ENVIRONMENT

The very nature of the production process – the mining and processing of copper and gold-containing ores has a negative impact on the environment. It is for this reason that the protection of the environment is a top priority in the activities of the companies and one of the main objectives of the “Srednogorie Med” industrial cluster. A proof of the consistent activities of protecting the environment, carried out by the leading companies in the cluster is the growing investment in new environmental projects, as well as the achieved environmental results (reduced carbon emissions, reduced consumption of natural resources, reduced water pollution, etc.)

The directions in which activities are carried out to reduce the negative impact on the environment are:

- Repairing past environmental damages caused up to the time of the privatization of companies (for example technical and biological restoration of post-mining landscapes);
- Improving production processes all over the value chain. Investment in the ongoing optimization and modernization of primary production has a significant environmental effect – increased productivity, reduced costs and cleaner environment. For example, with the optimization of the transport network in “Assarel Medet AD” the efficiency of mining transport has increased by 24% and as a result of the reduced number of working trucks a significant environmental effect has been achieved (the harmful emissions from the mine’s cars have been reduced by 41%);
- Technological innovations. Projects, which harmoniously combine innovation, economic efficiency and significant environmental effect, are being carried out;
- Improving energy efficiency and making use of renewable energy sources (a small hydroelectric power station, “Kaletso”, has been built, solar installations have been built on the industrial and administrative premises of some of the companies; possibilities are being investigated for the capacities of building an electrical or thermal power plant that utilizes the waste wood from the logging and primary wood processing in the Srednogorie region, etc.);
- Modern management of water resources and the waste from ore mining and dressing;
- Environmental monitoring – a precautionary approach has been applied to protect the air and waters; corporate environmental monitoring systems have been built.

An important aspect in the companies’ environmental activities is their active cooperation with institutions, citizens and NGOs.

¹ A distinction should be made between complying with legislation and regulations and CSR. The regulations, stipulated by law are part of the command and control approach of the state and they set out the minimum of requirements, mandatory for all companies. CSR activities are above legislative requirements. See Ir. Slavova, Corporate Social Responsibility and Public Policy: focus and trends in Bulgaria, magazine “Economic and social alternatives”, University of National and World Economy, No 1, 2013.

Characteristic of all companies in the cluster are the constant improvements in all areas of the health and safety at work. The main actions in this respect are: a) technological measures, such as the development and modernization of production, the consistent and successful improvements in production safety; b) internal and external training on occupational health and safety, which are part of the standards for all levels of management; c) monitoring and planning of comprehensive and preventive measures to reduce and eliminate risk to the health and lives of workers and improve working conditions in all workplaces.

The programs that have been drawn up focus on risk reduction and safety and health at work. The management teams are working hard to change the mindset and culture with regard to safety by means of the most modern safety equipment.

DEVELOPMENT OF THE REGION

The corporate social initiatives of “Srednogorie Med” cluster are characterized by their consistence and complexity and are aimed at supporting local development – the development of technical and social infrastructure in the municipalities, on the territory of which the companies carry out their manufacturing activities, as well as raising the standard of living.

Donor programs are implemented through the realization of projects that are essential to the development of the region. The cluster uses strategic forms of corporate philanthropy – not just donating money but investing in infrastructure projects through public private partnerships with the municipalities within the cluster. The CEO of “Dundee Precious Metals Chelopech” N. Hristov said, “I’m trying to avoid using the word donation, we try to look at this as investing in the local community. An investment that builds not only a living environment for people, but also gives opportunities to create more business, yet more opportunities for the region to develop better and better in the long term.”

The main forms of corporate social initiatives are:

- *the development of technical and social infrastructure* in the municipalities on the territories of which the companies carry out their manufacturing activities.
- *donations* of funds for the development of health care, culture, education, social work, sports and tourism (equipping schools, kindergartens and hospitals within the municipalities; sponsoring sports and cultural events, etc.).
- *establishing scholarships and internships*. Organizing internships and establishing scholarships present the company with the opportunity to secure future employees. This is a corporate social initiative that provides benefits both for the company and society. Internship programs are a long standing practice for all the companies in the cluster. Joint long-term internship programs have been set up by the members of the cluster. For example the mining companies “Dundee Precious Metals Chelopech” and “Aurubis Bulgaria AD” have been implementing a joint internship program in three-year practical training with the Vocational School of Mechanical Electrical Engineering in Pirdop. It might be expected that this practice will continue in the future.

CONCLUSIONS

The survey we have conducted gives us grounds to draw the following conclusions.

The ways/forms through which businesses carry out CSR initiatives are consistent with the companies' competences and institutional capacity, they are directly related to the mining and processing of copper and gold-containing ores and reflect the needs of the region. For the companies of the cluster two main forms of CSR are characteristic of, according to Kotler's classification:

- Corporate philanthropy, applying its strategic forms: investment in infrastructure projects through public private partnerships with the municipalities within the cluster; internship programs and scholarships.
- Socially responsible practices, aimed at improving the environment, human capital development and providing a high standard of healthy and safe work environment.

Corporate social initiatives are directly related to the core business of the companies, thus deriving both economic and social benefits. In this sense we could assume that through the continuous process of technological innovation and the improvement of all stages of value creation, the mining companies of the cluster are creating "shared value" – improving efficiency through the effective use of natural resources and improving the environment. This is also characteristic of the investment made in the health and safety at work.

Building technological and social infrastructure, based on public private partnerships, improves the economic and social development of the municipalities on the territories of which the mining and processing of copper and gold-containing ores is carried out. To the better business environment also contribute the other joint projects of the cluster – training, workshops, and discussions.

The analysis and conclusions made so far give us reasons to believe that the cluster "Srednogie Med" has the potential for developing CSR. The characteristic features of the cluster "Srednogie Med" that help to embed and implement CSR are presented in figure 4.

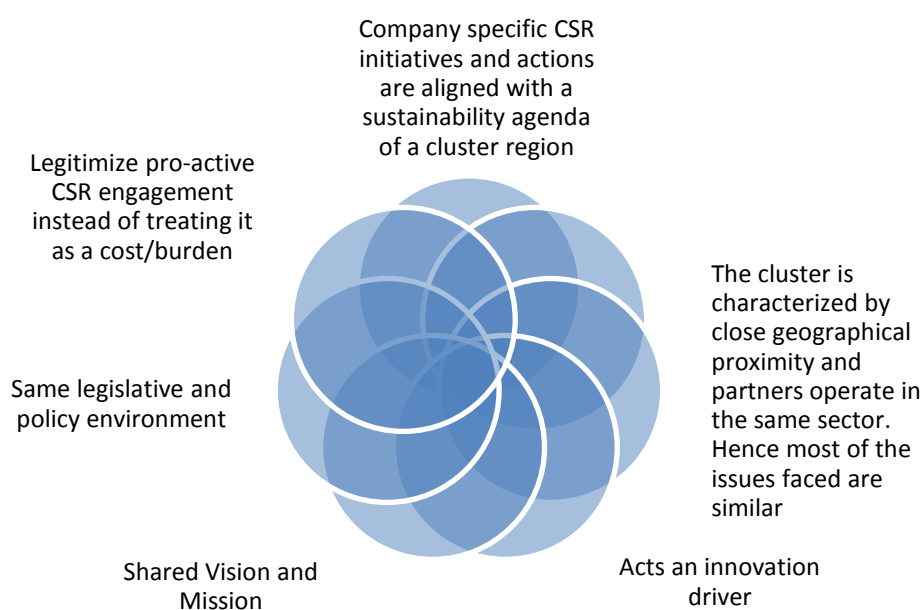


Fig. 4. Characteristic Features of Cluster "Srednogie Med", which help to embed and act on CSR

The experience, history and traditions of many years of mining in the region form the regional identity of the cluster. The industrial cluster “Srednogorie Med” is one of the first clusters in Bulgaria, it belongs to the group of active members, remarkable for the high degree of specialization and technological innovation. The companies, forming the cluster, are characterized by a complex, long-term and active CSR, directly related to their core production activities and an element of their corporate governance. There exists a specific form of interaction between the members of the cluster – the leading companies and the municipalities, on the territories of which they operate: sharing the common mission, aims and priorities of the cluster; organizing joint events – workshops, training, discussions; joint internship programs with local schools; joint public private infrastructure projects (technical and social).

One of the advantages of the cluster approach to CSR is attracting SMEs. In this area the activity of the cluster as a whole is still weak, even negligible/non-existent. The first steps in this direction were made by “Assarel Medet AD” when the company joined the latest project of The Global Compact Network Bulgaria, called “Program for the Promotion of CSR in SMEs”. The CEO of the company Engineer L. Tsotsorkov, Ph.D. explains that in this respect the company’s policy to the suppliers of “Assarel Medet AD” is being updated. “All other things being equal, preference will also be given to those partners who have adopted CSR as their conscious cause. We will also prepare a short guide with our principles and initiatives in corporate social responsibility, which will be available to our partners. With its active policy in this direction “Assarel Medet AD” is seeking to provoke interest, commitment and initiatives not only in the mining industry but also in the small and medium enterprises with which the company has business relations”.

We think that still the joint projects of the cluster members are limited, as well as the participation of the other stakeholders – companies, service providers, NGOs, universities and research institutes (partners of the cluster) and others. The long-term strategy for sustainable development of the region, which is being prepared by the leading companies in the cluster together with the municipalities, will help future work in this direction. According to Mr. Hristov, CEO of “Dundee Precious Metals Chelopech”, “What is important is the initiative, which we have taken with municipalities: to draw up a long-term perspective of how the whole region will develop in the long term, so that we, as a company, and our colleagues, the neighbouring companies, and also local governments, will be able to direct our efforts at investing purposefully in such ways as to ensure the maximum effective development of the region. It is extremely important for us and for the region to be able to define a strategy, around which all of us will unite and which will be the direction in which we will build purposefully, consistently, year by year.”

The research that has been carried out shows that the cluster approach to CSR has potential possibilities and that it should be used by creating “shared value” (concentrating corporate social initiatives in areas, directly related to the core business activities of the companies in order to obtain benefits for business and society), with the active participation of all stakeholders – civil society, NGOs, municipalities, research institutes, universities, government.

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CRITICAL INFRASTRUCTURE PROTECTION AND THE LOCAL PRODUCTION SYSTEMS

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INTRODUCTION

In 1997, the term “critical infrastructure” and its protection, as if somehow unexpectedly took place among the priorities of the USA government. Originally, the attitude towards this fact was more like to a particular “American” problem, which under the administration of the U.S. president then – Bill Clinton, put in the agenda of the National Security of the country with the strongest economy, leading technologically and militarily country. Terrorist attacks in New York and Washington on September 11, 2001, Madrid (2004), Beslan (2004), London (2005), in which the civilian infrastructure was used as a means and an aim of the attacks, gave a strong impetus to the view the traditional conceptions of security of the countries and their citizens need a substantial change.

The dramatical consequences of the natural disasters in various parts of the world in the last decade only intensified this conviction and logically imposed a more balanced understanding of the spectrum of threats and the approach to them. These events were symptomatic of the depth of the problem of vulnerability of the modern society; thus, the case opens the question of critical infrastructure and the opportunities for their protection.

The problem “Critical Infrastructure Protection” (CIP) now has ceased to be only “American”. It have elapsed nearly fifteen years, but without exaggeration, it could be argued that the task of building up modern national system for the protection of critical infrastructure, now present, albeit with different weight on the agenda of the vast majority of governments of countries with different geographical locations. This wave propagates with increasing speed and involves in the process more and more countries. The problem is among the most actively discussed by the civil and military experts from NATO and the EU, from experts in a number of specialized international organizations and gradually takes its place among the priorities of the modern world as a whole.

This paper aims to present the more general systematic look at some of the conceptual issues of the protection of critical infrastructure of the modern society. What are the reasons for this at first glance suddenly appeared and very rapidly began growing attention of the States and the international organizations towards the protection of part of the infrastructure of the modern society? What imposes the necessity to define part of the infrastructure as critical? What are its main characteristics and differences between CIP and the protected till now “strategically important” or “potentially dangerous” objects? What is the understanding of the opportunities and the main roads for its effective and efficient protection? And the last but not least, an attempt will be made to clarify whether and to what extent there is a relationship between critical infrastructure and the Local Production Systems (LPS). This is the main question on which this paper will give a general answer and to clarify it, at least partially.

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We hope this and some subsequent papers will contribute to the discussion on the development of a national system for the protection of the critical infrastructure to stand on a better conceptual basis, and to achieve greater depth. On the other hand, it would be a prerequisite for engaging enough political will, at the highest state level, for the accelerated development of the issues for the construction of this crucial for any modern state system, to ensure safety of its citizens at national and regional level.

EXPOSURE

The challenges at the end of 20th and the beginning of 21st century render that it is necessary for a new understanding of the vital/critical systems of the modern society and approaches to their protection. These factors are generally determined in the two groups, which occur as interconnected and mutually reinforcing each other. Chronologically, the qualitative change was identified and the expansion the spectrum of the threats in the period after Cold War. A little later in the focus of researchers and politicians stood and the need for a thorough study of the new parameters of the vulnerability of the industrialized societies.

If during the Cold War, the main task was to protect a given territory from clear and in the greatest degree predictable enemy (aggressive intentions of some countries to dominate others), after its end it changed not only the arena in which threats are played, but comes the qualitative change in their character. After the dramatic events on September 11, rearrangement came in the list of the threats. Threats of total war were shifted to the background of the threat of global terrorism that has been demonstrated intent and ability to impair, or destroy the very core, guaranteeing the functioning of the modern industrial society – its vital civil infrastructures. Moreover, using the same infrastructure as their weapon, it demonstrates it could make each point from industrialized societies in purpose and place of attack with overwhelming efficiency and effectiveness of the impact. The concept of “the asymmetric threat”, along with the term “soft targets” appeared. The term “challenges” gradually became preferable to the term “threat”, and part of the policies in the field of security was directed to examining the general vulnerabilities of society.

The natural factors as if neglected for some time as generators of threats, relentlessly reminded themselves. Only for the last fifteen years repeatedly in different geographic locations they suggested that standing in their way Society with its technogenic infrastructure, riding on the crest of the modern technology, actually rapidly approaching the critical point of its vulnerability. They reinforced the arguments for moving the focus to depth research, the vulnerability of modern society, and to analyze the risks associated with the maintenance and guaranteeing its vital functions.

The new threats can be characterized by concepts such as “obscurity”, “unpredictability”, “uncertainty” – unknowing who is the “enemy”, what are its goals and abilities, where he is, who or what stands in front of or beside us, with whom we meet in the regular or the virtual world of modern networks, unpredictability of the time, place and character of possible “attack” – all these wear depressing feeling of insecurity in everyday life, etc. Another key feature of the threats/risks in the globalized world is that they have greater freedom to “move” in all society areas. They can reach any point in space, taking advantage of the freedom of movement of goods, capital, people, and technologies. The borders today are “diffuse” and the goods and technology – with “dual use”. The term “frontier” of the new threats there, exists neither in physical, nor in a legal aspect. Together and via these freedoms the threats directly or indirectly act in all directions of the social structure, threatening entire sectors, and countries.

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This nature of the new challenges in the security sector brings to the fore the notion that more productive is the approach for them to be analyzed as risks. The risks are by definition indirect, unforeseeable, uncertain, and arranged in the future.¹

The recent years affirmed the view that the powerful in its scope technological development, the globalization, along with their positive effects, in nature has become a major generator to increase the vulnerability of modern societies, turning them into an organism woven and knitted by networks, systems, infrastructure, of which generally depends its functioning. “Challenges at the beginning of 21st century is not concerned with preserving the integrity of a certain territory but are related to the preservation and maintenance of critical functions of the society. The strategic environment is a complex and interdependent, effects and consequences in particular country may be caused by events far from its territorial boundaries.”² It manifests itself in blurring of the boundaries between the national and international arenas of security.

INFRASTRUCTURE

Infrastructures are the basic structures (large complex systems) through which the functioning of the modern society is possible. The continuous process of “delivery” of goods and services to maintain current standards and living conditions of the population in the developed countries becomes possible through a complex system of infrastructures, providing various functions of the state. There are concentrated resources in each of the infrastructures, which are generally people and their organizations, technologies and equipment, monitoring and information systems. Examples of such infrastructures are the system of electricity and water supply, sewerage system, the food supply system, telecommunications, the transport system, healthcare, the education system, etc. People do not “use” the infrastructures directly, but they consume the products and services produced and delivered to and through these infrastructures. After decades of fantastic technological upsurge the modern society has only just begun to painfully realize the depth of its dependence on them.

BASIC CONCEPTS OF THE CRITICAL INFRASTRUCTURE

Some infrastructures deliver vital services, products, resources of the contemporary society – e.g. without which life would not be normal or would have been impossible. In this sense, these vital services, products, resources are evaluated as “critical”, and the infrastructures through which they are supplied acquire critical role in societies and therefore we call them “critical infrastructures”. In practice, in order to qualify a given one as critical infrastructure, it must provide one or more basic vital functions of the state. The indicators for these functions are dissolved out from the national definitions of national security and national interests where the core values of the society are coded. Respectively the product/service is considered vital if they are necessary to keep one of those values. This perception determined the main content of the concept of “critical infrastructure”. This criterion has established itself as a basic and is also known as a functional criterion for determining the

¹ Dunn M. Critical Infrastructures: Vulnerabilities, Threats, Responses, Vol. 2, No 16, 2007 CSS, ETH Zurich, Switzerland.

² Gronval G.A New leader In Societal Security Efforts in Sweden, The CIP Report, CIP Program, June 2008, Publ. by Zeichner Risk Analytics

critical infrastructure. You could refer some of the so called “strategically important objects” as elements of some of the critical infrastructures.

There is also another criterion, referred to as “symbolic”, through which to the basic – the “system” core of the critical infrastructures (defined by the functional criterion), are joined other separate objects, which in themselves do not constitute an infrastructure, but which are symbolic of the will and the morality of a given people – historical sites, landscapes, created by the human mind and hand monuments, and other objects.

A third group of independent objects could be joined to the critical infrastructure that have symbolic importance for the society, but which are characterized by the accumulation of large masses of men or have enormous destructive potential – dams, schools, and other facilities. Their destruction or distortion of some elements would be accompanied by large-scale human and material losses. The last group corresponds with some of those determined before as “potentially dangerous objects”.

In the United States, official documents along with the concept of critical infrastructure are attending the concept of “key resources”¹ (CI/KR). It could be defined as “public or private controlled resources essential to the minimal operation of the economy and the government.”

This unsystematic character in the content of the criteria leads to a blurring of the nature and boundaries of the concept of “critical infrastructure” that creates real difficulties in determining the supporting arguments for prioritization between sectors and objects for their inclusion in the system of critical infrastructure.

In connection with the determination of the main content of the concept of critical infrastructure deserves attention perception that critical functions of society could be viewed in two groups²: one includes those functions, whose disruption could lead to serious tensions within society, and the other functions, which should provide sufficient flexibility of the society to cope with the tensions.

In essence, critical infrastructure has been identified and therefore protected at every stage of development of the human society, in all civilizations. Examples of CIP are those road systems, that empires are considered important for its citizens and their administrations. Those systems are sometimes defended with all their military might.

Protection activities of critical to the functioning of society objects and systems are organized and carried out in the decades of the Cold War. Large part of these individual objects and autonomous systems actually are now included as part of the infrastructure of the main sectors that form any given national critical infrastructure.

The reasons to seek a new conceptual solution to ensure the inviolability and the normal functioning of the vital human infrastructures of modern societies are rooted in the almost simultaneous occurrence of the following circumstances:

- First, as already discussed, under the influence of the two main factors – globalization and development of the modern technologies, there are dramatic changes in the essential characteristics of the infrastructure. Globalization means the growing interdependence of markets and networks in a number of vital societal sectors such as energy, information and communications, transportation, and more. In turn, the development of the modern technologies has created "scarring" of the cyber and the physical world – the information consequences entail tangible once, the material leads to information consequences. The main result of this process is that the infrastructures are not only interconnected, but interdependent, so that their vulnerability is greatly enhanced compared to the previous historical periods.

¹ Homeland Security Act of 2002, USA (6 U.S.C. 101(9))

² Gronval G.A New leader In Societal Security Efforts in Sweden, The CIP Report, CIP Program, June 2008, Publ. by Zeichner Risk Analytics.

- At the same time, there are dramatic changes in the security environment in which operate these infrastructures – the new nature of the threats of the modern world (mainly related to human activity, including terrorism) is characterized by a high degree of uncertainty and unpredictability.
- Last but not least in importance is that over the past 25 years, privatization and liberalization (deregulation) in many of these important sectors have been realized. That led to a contraction of the role of public institutions in the operation with the critical infrastructures. The majority of these infrastructures are now controlled or dominated by the private sector – operators, service providers, owners of networks, etc. Therefore, serious difficulties arise to the solving of questions in the critical infrastructure protection to combine the tasks of the national security with the interests of the business and to determine the ratio of the roles and responsibilities of the state and the private sector.

WHY IS THE DEFINITION OF THE CRITICAL INFRASTRUCTURE PROTECTION NEEDED?

Herein, we would like to note that foreign experience also shows that the construction of a national system for the protection of critical infrastructures satisfying the contemporary concepts and criteria is largely a political issue.

Some of the most important conclusions in the process of defining the critical national infrastructures, which are imposed by the experience of the states working on the development of national systems for the protection of critical infrastructure, could be summarized as follows:

- There is no universally accepted definition of critical infrastructure.
- The national definitions differ in their scope and wording as it is logical to reflect national priorities and perceptions and some national characteristics and traditions.
- Predominant is the application of cross sectoral approach. At first, a common abstract definition of criticality is made and then the critical sectors that meet this definition are identified. This is a pragmatic approach by following the accepted in the respective country boundaries between the different industries/businesses. It essentially reflects the fact that the vast majority of the critical infrastructure is now in the private sector.
- The sectors that cover different national definitions are different for the countries. However, there are several sectors that are generally included (albeit with variations) within the scope of their constituent infrastructures: information and communication, transportation, energy, food supplies and drinking water, public health, government institutions and services (incl. defense, accident and emergency services, justice, etc.).¹
- We do not know surveys that present a methodology for prioritizing these critical sectors in the event of a crisis. The question that should be answered in this case, according to some authors² is “Which infrastructures are critical to achieve the predetermined goal?” This issue is valid and in prioritizing the links between infrastructures. With this approach, it is assumed that the criticality could vary depending on the situation and the purpose, which it dictates to achieve.

¹ NATO Parliamentary Assembly, The protection of Critical Infrastructures, by special reporter Lord Jopling (UK), 162 CDS 07 E rev1

² Benoit R. et al. Characterization and Ranking of Links Connecting Life Support Networks, Risk and performance Centre, prepared for Public Safety and Emergency Preparedness Canada (2003)

As an illustration of the foregoing, we will comment the development of the national definition of critical infrastructure in the USA. An initial broad definition includes: telecommunications, electricity, natural gas and oil, banking and finance, transportation, water supply, public service, and emergency rescue activities. In 2001, the definition has changed: critical infrastructures are “systems and assets, physical or virtual, that are so vital to the US, that disruption of, or destruction of such systems and assets would lead to a weakening of the security of the national economic security, of the national health and safety, or a combination of these”¹. Thereafter another definition is applied, representing the critical infrastructure of the United States as “a framework of interdependent networks and systems comprising identifiable industries, institutions (including people and procedures), and distribution capabilities that provide a reliable flow of vital products and services for defense and economic security of the United States for the normal functioning of governments at all levels and for society as a whole.”² Subsequently, 18 sectors are included in the list of critical infrastructure with the addition of the education system, agricultural production, national symbols and monuments, water supply infrastructure, and more.

The practice of many countries and international organizations shows that for building a system for the protection of critical infrastructure needs to be implemented a series of sequential steps³:

- Adoption of a definition of critical infrastructure;
- Identification of the infrastructures that meet the definition;
- Assessment of the risks to this infrastructure and laying down of threatened areas;
- Identifying and implementation of appropriate measures to reduce risk.

IDENTIFICATION OF THE CRITICAL INFRASTRUCTURE

The process of identifying the critical infrastructure actually begins with the definition of a list of the critical sectors. Once again, we remind that the criticality of a given sector is determined by its place and importance in the supply chain of vital products and services and the potential negative/destructive impact with its poor functioning or failure would have on the supply chain. As a common rule, the definition of the vital sectors in all countries takes into account the potential loss of human lives, economic, political and social consequences.

From the point of view of national security to define the level of impact of the destruction/disruption which is acceptable to society, responsibility rests with the state.

Determining the sectors which are carriers of the criticality is just the beginning. There is a need for further in-depth analysis to locate and identify who is actually more concrete bearer of the criticality in the system (detection of critical nodes, links, separate objects into the infrastructures).

Experience suggests that the practical work to carry out such an analysis is organized in the following sequence: 1) identification of critical sectors; 2) determination of the sub-sectors (based on organizational criteria); 3) identifying the main functions of the sub-sectors (basic values that they create); 4) identification of resources necessary for the functioning of sub-sectors.⁴

¹ USA Patriot Act of 2001 (42 U.S.C. 5195c(e))

² Presidential Decision Directive 63

³ NATO Parliamentary Assembly, The protection of Critical Infrastructures, by special reporter Lord Jopling (UK), 162 CDS 07 E rev1

⁴ Brunner E., Sutter M. International CIIP Handbook 2008/2009, Center for Security Studies, Swiss Federal Institute for Technology.

The accumulated in many countries experience gives reason to highlight these activities where difficulties may emerge and to which particular attention in the process of identification of critical infrastructure should be paid:

- The development/adoption of an appropriate common or harmonized methodology which the representatives of public and private sector (owners and operators of infrastructure) will be used for identification of the elements of the critical national infrastructure;
- Implementation of the principles of subsidiarity and proportionality – it is necessary to use clear criteria to distinguish the part of the infrastructure that is critical to the national level. This part of the critical infrastructure should be preferably included in the national critical infrastructure, as opposed to the one that has a critical impact, limited (on regional/local level), and does not require specific national measures, but it has to be included in the records of the regional/local critical infrastructure;
- Necessity to establish a clear boundary between “vital” and just “important” products and services (sensitivity of the criteria) – a lack of such sensitivity could lead to excessive expansion of the list with the critical infrastructures, which raise the question “Is it possible to ensure security when almost everything is critical?”
- It is necessary to manage the natural desire to protect everything at risk – total security is impossible both in technological and because of the resource reasons, the result of such staggers would result in negative effects;
- Taking into account the deficiencies and limitations of existing methods in their application to risk analysis in the identification of critical facilities – the most significant drawback is that the vast majority of them do not reflect the interdependencies, most of the methods are very specific to a particular sector or are applicable for a separate infrastructure, no less important is that they are not designed to reflect the strategic importance of an infrastructure for the security or the economy.

CRITICAL INFRASTRUCTURE PROTECTION DEFINITION

The basic concepts, which are based on relevant national and international strategies to protect the critical infrastructure, could be reduced in general to the following:¹

- It is not possible to carry out total protection of critical infrastructure from all threats;
- Therefore, the critical infrastructure protection is the process of risk management, in which, as is already known, the main objective is to implement measures to reduce the residual risk to an acceptable level.

If we still need to give a definition of “critical infrastructure protection”, then, an appropriate, in our view, formulation is that it is “actions designed to reduce the overall risk to the assets, systems, networks and relationships of critical infrastructure posed by exposing them to danger, injury, destruction, bringing in the unfit condition or operation.”²

¹ NATO Parliamentary Assembly, The protection of Critical Infrastructures, by special reporter Lord Jopling (UK), 162 CDS 07 E rev1

² National Infrastructure Protection Plan, Homeland Security (2006)

THE LOCAL PRODUCTION SYSTEMS (LPS) AND SECURITY

For many years, scientists and experts in different countries are engaged in the search for solutions to the problems related to the formation, functioning and development of the local production systems. Most frequently their attention is focused on the growing importance of local production systems for the optimal functioning of the economy at regional level¹. The grandiose changes taking place in all spheres of social life, revealed in the present exhibition, deepening processes of globalization and at the same time of regionalization (i.e. globalization), and the unimaginable changes in the security environment (as a concept and content) also put their mark on the local production systems. From a systemic perspective the LPS could be defined as adaptive, self-organizing complex systems by a general nature.

We will not deal broadly with the nature of the LPS, but we will try to give reasons why a direct relationship exists between them and the critical infrastructure. Especially in the present conditions the marked changes cannot omit the LPS which at the local level often act as foundations of the various local infrastructures.

In the context of the new global economy, quality different from those existing at the end of XX century, the local production systems in nature, will be increasingly important to ensure an optimum level of security not only within the limited space areas of their occurrence, function and development. In view of the deepening economic differentiation and stratification within the different countries and their regions, namely the local production systems will have a significant role in dealing with them. How? By strengthening their role in sustainable dynamic development of the Regions and turning them into a catalyst for economic development at the local level, a generator of jobs, a successful partner not only of the large structural entities in a given sector, but for the local and central government administrations too.

The questions whether, how and under what conditions certain LPS could be assigned to the critical infrastructures, specifically at local level (region, district, municipality, etc.) remain open. Without finding these answers, very few would be achieved in the depth study of the pasted fundamental problem by us – the connection LPS – critical infrastructure protection – security.

The infrastructures are the main means for the realization of contemporary security. The role of the critical infrastructure for the economic development is a matter of fact. We assume that in the broad philosophical sense the “security” of the objects with social nature means reliability of their existence and sustainable development. What is the role of the LPS in the described processes? Why are they acquiring more tangible meaning in the contemporary economy?

THE ROLE OF THE LPS IN THE SYSTEM DEVELOPMENT

In the reflections of competition and also for the development of systems and the level of the particular organizations dominant theme is that the organization happens within the company/organization. The study of the competitiveness of nations and the states focus was on the economy as a whole in terms that national economic policy has a major influence on the processes involved. Both in the development and in the competition itself, as well as in the competitiveness, as the driving force of development, the role of the location almost were not accounted. In many cases there were tendencies for neglecting, considering mostly the limited role of the placement. Globalization gives companies the opportunity to receive capital, goods,

¹ Fiorenza Belussi, “Policies for the development of knowledge-intensive local production systems”, Cambridge Journal of Economics, No. 23 (1999): 729–747.

and technology by anywhere and can move the production to where it is most effective in terms of the costs. The governments are seen as losing their impact on the competition in comparison with the forces acting globally. Such a view, although it is widely distributed, does not correspond to the real situation in the processes of competition and development of different systems (Dimitrov D.Y. Personal communication, 2005).

LPSs are geographically concentrated groups of interrelated companies, specialized suppliers, service providers, firms in their respective business sectors, and also related to their work organizations (e.g. universities, standards organizations, trade unions and others.) competing in certain areas, but together with this leading joint work. Creating a critical mass of unusual competitive success in particular areas of the business the LPSs are proving pronounced characteristic on virtually every national, regional area, even the urban economy. Particularly important is the role of LPS in a restructuring of the Bulgarian economy and the other areas of public life.

At the same time, as a phenomenon, LPSs in one form or another have been recognized and studied in several works. LPS cannot be understood, if considered independently by the broader theory of competition and the impact of the location in the global economy. Predominance in the economy of the LPS rather than isolated firms and industries, shows the exterior of understanding the nature of competition and the role of the geographical location in the competitive advantage. The concept of LPS represents a new way of seeing the national economy, the economy of the district, region, and the urban economy, striving to enhance the competitiveness and development of the systems in the named range. The existence of the LPS suggests that the main result of competition is reached outside the particular company, and not even in the sector, but rather in the places of deployment of its subsidiaries. The importance of LPS forms new programs of management, the need for which is understood very rare.

We argue the importance of LPS for the modern economy with the following example: Often the lack of a cluster approach, as part of LPS nature, and the cluster thinking too, are part of the reasons for the failure of the solo activities in the creation of new enterprises. Much of the new businesses fail in Bulgaria precisely because they are created isolated and not correlated with the suppliers of raw materials, equipment, infrastructure, and markets. Without render an account of this interconnection is not possible to have a competitive economy, as well as high and competitive service. This applies to health care, education, and to a range of social services that municipalities and private companies are called upon to provide. The health of LPS is important for the health of the company, city, area, region, and country. The company could extract real benefits from the availability of local competitors. Trade associations could make valuable contributions to competition and also the lobbying, and why not the public organizations could do the same.

LPSs also form new roles for the government. The introduction of proper macroeconomic policy stimulating competitiveness, finds a better understanding, but understanding only is not enough. More crucial is the impact of the government that it should be at the level of microeconomics. Priority areas need to become removing the obstacles to the expansion and improvement of existing and emerging LPSs. Clusters represent a driving force to increase exports and attract foreign investment. They create a forum in which new ways of dialogue could and should have a place among companies, government agencies, and the ministries and organizations (such as schools, universities, organizations with a social purpose, etc.). Such dialogue without knowing the theory of LPS is impossible or if one is held, it is in advance condemned to low efficiency, failure, and missed valuable time.

It is necessary to do an overview of the knowledge about LPS at present in Bulgaria first, for their role in the process of competition and business development, human settlements, regions and sectors, as well as their impact on the national economy. This in turn is a prerequisite

for the involvement of the LPS of existing or non-existing, but designing processes to be performed in the sense that we talk – critical infrastructure protection of the modern society.

The LPS appear on the economic horizon for a longtime; the geographic concentration of associations and companies in certain sectors exist for centuries, however, the role of them has been significantly reduced. Along with this, the depth and breadth of the range of the LPS formations increases with the development and increasing of the competitive struggle and the current complications, above all in the modern economy. The globalization, together with the expansion of knowledge about the risk, heavily modified the role of LPS in the competition. (Dimitrov D.Y., Personal communication, 2005).

LPSs are observed in different sectors characterized by high technology, and in the traditional sectors, both in production and in the industry for providing services. Actually in the LPS very often intertwine and the high-tech industries and non-high-tech production and service. In some regions there is a single, dominant LPS, and at the same time in others could be seen a number of such LPS's. LPSs arise under the conditions of developed or developing economy, although the lack of depth in the LPS in the developing countries characterized them by their limited occurrence and development.

Undoubtedly, recent researches have made a certain contribution to our understanding of the impact of LPS on the competitive struggle and the development of various systems. In the literature on the Economics of the agglomerations the focus is on minimizing the costs, of the specialization – became possible thanks to the volume of the local market, and the benefits of the urbanization close to the markets. The standard prerequisite to the concept of the direct and reverse links highlights the need for development of the sectors related to many other sectors. On the contrary, the theory of LPS defends the development of the branches to the emerging concentrations of firms and encouraging the development in these areas of activity with strong links within each LPS. This principle statement and at the same time starting point should be borne in mind when analyzing and shaping the strategy for the regional development, as well as of urban, district, regional, branch, and the national economies level.

Only recently the importance of the LPS in the competitive struggle and the development of the systems of different ranks, started to be widely realized.

LPSs have much more complicated and integral importance than it previously thought in the modern economic theory.

LPSs represent an important form in the complex multi-center organization; they are a feature of the market economy. Condition of existing in some economies LPS allows drawing conclusions about its capabilities and the existing for the specific economy restrictions on the further development. The role of LPS in the competitive struggle and development increases the importance of understanding the situation of the companies, through the governments, district, regional, urban and other institutions. (Dimitrov D.Y., Personal communication, 2005).

Why should the economy be viewed through the prism of LPS and not through the traditional grouping of the firms, companies, industries or sectors, both in production and in the servicing? Primarily, due to the fact that LPSs are coordinated by the very character of competition and the sources for achieving a competitive advantage as conditions for development. LPS is much better than the branches of the industries covering important links, complementarity of production branches, technology diffusion, habits, information, marketing and awareness to the requirements of the contracting entities by companies and the industries. Such connections are proving essential in a competitive struggle and the increasing productivity, especially in determining the guidelines or the directions and locations of the organization of new business and implementation of innovations.

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The majority of participants in the LPS do not compete directly between themselves; they just serve different segments of the industry. However, there are still many common needs and opportunities; they face common constraints and obstacles in their way which they are trying to decide together.

To survey the company groups and organizations such as LPS allows revealing the possible opportunities for coordination of actions and mutual improvement in the field of general interest, without danger/threat of competition or limiting the intensity of that competition. LPSs provide an opportunity to conduct a constructive and effective dialogue between related companies and their suppliers with the government, but also with the other institutions. This fact has been of great importance in the search for modern mechanisms for cooperation regarding the protection of critical infrastructure.

Ignoring the nature and the importance of this modern aspect of the functioning of the current economy associated with the place of LPS will doom to failure the efforts in the field of critical infrastructure protection.

CONCLUSIONS

Knowledge in the theory of LPS is in the beginning in Bulgaria. While there are many publications about competitive advantages of the country, geographic location, the population, climate, etc. – this in itself is a prerequisite in order for these benefits to be implemented in the context of the processes of globalization and regionalization that take place. We should further deepen the specific research which could provide answers to real problems and more feasible objectives to be placed. We have to say immediately that we do not have formal organizations which pretend to have LPS vision and more – leading the processes of formation of LPS at regional, and in some ways at the national level. But as we know, the criterion for every action, every thought and intention is the result of the actions. Unfortunately, the results for the country, as well as for the regions and urban places are very tragic, as evidenced by the statistics and analyzes (albeit partially) by various agencies, and experts from Bulgaria and the European Union in connection with closer or longer term integration of Bulgaria into the European economy. It is time to focus on opportunities that provide LPS for making the economic development of the country on a strong foundation.

In a similar way is the situation in relation to the protection of critical infrastructures in Bulgaria. We believe it is time for Bulgaria to stop preparing for failure in the protection of the critical national infrastructure. The trip promises not to be easy, but is essential for its citizens.

In view of the global changes in the security environment and the economic development, especially at the regional level, in-depth studying the relationship LPS – Critical Infrastructure has no alternative. The possible methodology and research methods to these questions are left to our future creative pursuits. With the rapid development of the network structures for the account of the hierarchical, the questions which we tagged in this paper will occupy an increasingly important place in scientific research related to the functioning and development of the modern socio-economic systems.

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METHODOLOGY FOR IDENTIFICATION AND ASSESSMENT OF THE INTELLECTUAL PROPERTY OF LOCAL PRODUCTION SYSTEMS PARTICIPANTS

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INTRODUCTION

Intellectual property system provides protection for objects resulting from intellectual labor of man. These are the products that derive from the activities of small and medium enterprises as a result of their industrialization and commercialization. In the modern world concepts such as knowledge economy, innovation, know-how, research and development are an essential part of the development, marketing and management activities. However, often a large amount of small and medium enterprises are not yet able to estimate the economic benefits that their owned or managed intellectual property gives them. There is considerable misunderstanding and confusion about the nature, function and role of intellectual property in the economic growth both on macro and micro level, the formation and operation of industrial and cultural clusters and local production systems. Intellectual property is often being associated with the music, movie and entertainment industries. This approach is economically inappropriate and completely wrong, because intellectual property is primarily innovation and technology and is the main power behind the technological progress. In present-day market conditions, inventions, trademarks, design decisions, know-how, trade secrets, geographical indications, software and Internet domain names are fundamental for the development of latest business. These intellectual property objects bring significant economic benefits for every business having them. As intellectual property, the objects are present in the company balance sheet as intangible assets. And they are identified, managed, evaluated and recognized as such.

Today more than 70% of the assets of the world's largest corporations are intangible. And it's not only large and medium-sized corporations who have intangible assets. Small businesses and municipalities also have intangible assets. Therefore, their identification is a prerequisite for sustainable economic growth of the business unit and the network between inter-industrial and institutional relations in which it operates.

IDENTIFICATION OF INTELLECTUAL PROPERTY INSIDE THE COMPANY

The intellectual property system is built in three main subsystems: industrial property; artistic property and new intellectual property objects. In each of the three subsystems various intellectual property objects receive protection. Intellectual property objects represent technological and social innovation, intellectual solutions in the areas of science, technology, literature and art (Figure 1). They are characterized with innovation, novelty

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and originality. They have an intangible character and appear as intangible assets in the balance sheet of the company. The scientific discovery presents outside of the three subsystems, but in the intellectual property system and it is a specific object of intellectual property. Scientific discovery represents a fact from reality, and as such is a “resource” for creating technological innovation – inventions. Although the intellectual property objects are technological (invention, utility model, trade secrets, etc.) or social innovations (music, movies, books, etc.), not every innovation is a subject of intellectual property. These are only the innovations that meet the criteria for protection with intellectual property rights. These criteria vary for each subsystem of intellectual property depending on the area of the economy, in which the innovation was established.

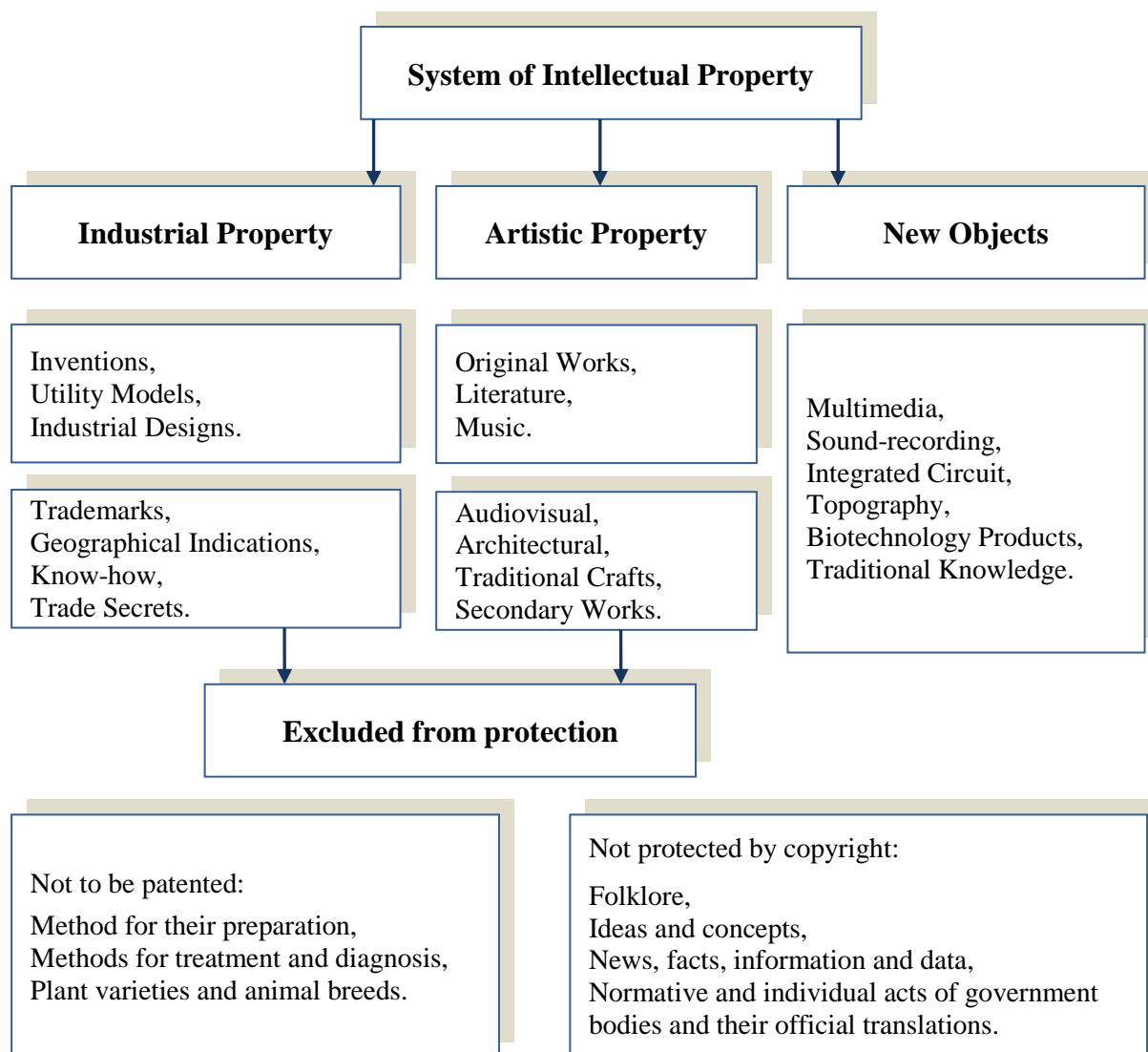


Fig. 1. System Intellectual Property.

Undoubtedly the most important thing required for economic survival and growth is the invention. Inventions represent technological innovations that meet certain criteria. The invention is directly related and is a major driver for the technological progress in economic aspect. In developed economies, which are guided by the knowledge and intellectual property, companies compete between them through new and original, creative ideas. Their implementation results in an improvement of the existing product specifications, development of new ones and to the creation of an entirely new product. When an enterprise through scientific re-

search and development reaches a new technical solution to a problem from any area of the economy, in an unexpected new or a better way, it must take measures to get a patent on it. In this case, the patent represents a protected document for the created by the enterprise invention, whereby the State guarantees its commercial monopoly for a certain period of time. Machines, machinery, equipment, substances (drugs or drinks like Coca-Cola), microbiological methods they can all be an inventions.

Another object of industrial property pertaining to the production activity of the company is the utility model. This object is related directly to the product shape which determines its function. When the company modifies the shape of the offered product that leads to changes in its function such as adding a new one, it creates a utility model. Utility model is the so called little invention, as it is also involved in scientific and technical progress.

The trade secret is an object owned by every enterprise, but not always identified as an intangible business asset. A trade secret is any information essential to existence and operation of the enterprise's business. A trade secret can be organizational, management, marketing, production, etc. The protection of trade secret is a subject to a special regime for the preservation of valuable business information in secrecy.

The objects from the subsystem of industrial property that are relevant to commercialization of the products, and not with the production process are trademarks, industrial design and geographical indications. From those the one with highest economic potential are the trademarks. They represent a sign which distinguishes the goods or services of one producer from those of another. Unlike industrial design that is related to the visual appearance of the product trademarks identify the manufacturer and the trader of a product (service).

The objects in the system of artistic property are social innovations that are protected by copyright and related rights. Protection is provided for both their creation and their commercialization. Artistic property objects are the different kinds of works, incl. computer programs, databases, domain names, multimedia, traditional knowledge, sound-recordings and other. These intellectual property objects participate actively in the growth of the national economy by adding a significant contribution to the gross domestic product and value added. They are created and operate in complex network structures where individual industries such as music, movie, publishing, electronic media and others operate under separate clusters that are functionally related and dependent on one or more LPS. Both in the sector of material production and in the sector of nonmaterial production the roles of government and the local administration are extremely important.

Any enterprise that owns intellectual property also has:

(1) Competitive advantage, strong market position and gain additional profit

When a company uses a subject of intellectual property in its activities that leads to improvement of its market positions, provides a competitive advantage and increases the revenue. Intellectual property law provides protection when the company publicly reveals the results of its operations. This allows the company to expand its markets positions such as to participate in official trade fairs, exhibitions, shows and presentation and also to reveal the essence of its business without having the risk that competitors will benefit from the provided information.

Intellectual property law allows the holder company to prohibit by court order competitors to manufacture, sell, use or distribute the new or improved product without explicit consent. These advantages can reduce or eliminate competition. And this leads to increased sales, as competition is unable to offer a similar product.

(2) New cash flow

When an enterprise owns intellectual property objects it can license them. Licensing is usually done against remuneration, which will form new cash flows.



(3) Fundraising and attracting potential investors.

Objects protected with intellectual property rights can:

- be sold or be licensed;
- serve as a bank guarantee, a security or a pledge for bank loans;
- protect the company's investment in its scientific research activities;
- increase return on investment (ROI).

(4) Subject to transactions without financing

Objects can be the subject of a transaction in which the consideration is to permit the use of another's intellectual property. These are the so called cross-licenses. They represent an agreement between two or more parties where each party grants rights to their intellectual property to the other parties.

(5) Strategic Partnerships

Having an intellectual property portfolio is a certainly condition that the company will have stable market positions and strong positions in business negotiations regarding strategic partnerships such as merger and acquisition, or accession of the entire enterprise. This is a result of the increased business value of the company and the better negotiating positions which the intellectual property provides.

(6) Related sales or misleading consumers

Related sales or misleading consumers is when an enterprise sells a product designed under new technology or offered under a certain trademark or original design and the product is similar in functionality to competitor's products. Users can then be misled as to the origin of the product and begin to consume analogue products due to the lower selling price. In these cases, the enterprise that holds the intellectual property rights may require the competitor to change his product and to apply different strategies to the customers using the benefits of intellectual property. For example, the enterprise can use the reputation of the trademark used as a guarantee of quality and provenance of the manufacturer or trader; or the geographical indication as a guarantee of certain quality characteristics of the product, etc. Implementation of these strategies will differentiate the products from the intellectual property portfolio from the products of the competitors.

(7) Part of the branding and marketing strategy

Companies with an intellectual property portfolio can publicly use it by showing higher technology capacities, greater opportunities for innovation and performance in the advertising, marketing and branding strategies in the market.

No matter of product manufacturing or what services the company provides, it probably regularly uses or creates a large amount of intellectual property. Therefore, a systematic check to obtain protection and proper management and use of intellectual property is a prerequisite for the best financial results from using intellectual property rights. When an enterprise does not create nor has its own intellectual property, but its activity is directly related to the use of another's one, it should take measures for its acquisition. Possible options are buying the intellectual property (e.g. purchasing a patent for an invention or trademark) or acquisition a license. Purchasing or licensing another's intellectual property will allow the company to use it freely in its operations without violating someone's rights. Any unauthorized use of another's intellectual property rights is a precondition for the emergence of a legal administrative, civil and criminal liability and costly litigation. The choice for the type of acquisition of another's intellectual property rights shall be consistent with the economic interests and the consequences for the company that uses it. Thus, in the sale-trade of another's intellectual property rights (patent for an invention) the property is expropriated from the object of protection. In the example, this is the invention. But besides that, the company purchaser also acquires:

- *the exclusive right* of intellectual property

Exclusive intellectual property rights are granted by the patent. A patent is a protected document. Both Intellectual property rights and patents act for a specified period of time and for a specific territory (the countries on whose territory the patent was granted). In a meaningful aspect intellectual property rights authorizes the holder to exploit the object of protection; to dispose of it, to prohibit a third party from using the object. To dispose means to sell or license the object protected with intellectual property rights.

- *trade monopoly* to produce and to trade with the object of protection

Trade monopoly is an exception to the principle of antitrust activity in the free market relations. This exception is due to the fact that the invention will generate goods that will satisfy public needs. The trade monopoly is an expression of the public gratitude to the inventor, which is limited in time and territory. Trade monopoly occurs simultaneously with intellectual property rights and acts in the same time and area. Trade monopoly is an expression of the holder's right to exploit the invention himself. Exploitation, in this case, means an industrial production of the object and marketing of its copies.

A holder of the intellectual property rights, according to the example can be the inventor himself as well as a company.

Licensing is another possible form of acquisition of foreign-owned intellectual property. Unlike sale-trade when licensing the ownership of the protected object is not transferred, only permission is given for its use. The permission to use the object is the license. It may be limited to production or trade, for time, for place or for volume of production, for price or distribution or for the logistics network. License is usually done against remuneration – royalties. The range of action is against all persons other than the licensor and licensee. Licensing is only possible for intellectual property objects because of their intangible nature that allows their simultaneous use by several persons in different territories without wearing out or destroying the object.

Intellectual property created in the enterprise is not limited to inventions. Almost every company has a corporate name, one or more trademarks, industrial designs and know-how. Most companies have valuable confidential business information, such as lists of customers or sales strategy. Others have created original designs. Some companies create works under copyright protection or helped in the publication, distribution or sale of such. Some companies have created or improved a product associated with the use of intellectual property. The economic interest for the company is to decide how to get protection for these objects, because intellectual property can help in almost every aspect of business development and implementation of competitive strategy:

- from product development to its design
- from provision of service to its marketing
- from fund-raising to exporting or expanding its business abroad through licensing or franchising.

INTELLECTUAL PROPERTY AS A BUSINESS ASSET

An enterprise's business assets may be divided into two categories: physical assets—including buildings, machinery, financial assets and infrastructure and intangible assets such as human capital and know-how, innovations, brands, designs and others. These are the so called intellectual property objects that represent the intangible fruits of a company's creative and innovative capacity. Traditionally it is accepted that physical assets form the larger part of the company's value and that they have been responsible for determining the com-

petitiveness of an enterprise in the market place. In recent years, the situation has changed significantly, since tangible assets tend to run out, while intangible assets are quite the opposite and even increase their value over time. Therefore, companies reoriented their production to use resources such as intangible assets. This process is strengthened especially after the revolution in information technology and in the growth of the service economy and digital markets.

These trends reoriented production process to the use of powerful software and large databases. Innovative thinking and management approaches have become the main source of income for a large and growing proportion of enterprises worldwide. And even in sectors where traditional production techniques remain dominant, continuous innovation and endless creativity re becoming the keys to greater competitiveness in fiercely competitive markets, be it domestic or international. The role of intangible assets for business development becomes a prerequisite for more and more companies to identify them and take the necessary measures for their protection as intellectual property.

Intangible assets receive legal protection if they meet certain criteria. The protection is provided by intellectual property rights. Intellectual property rights may be received for the following categories of intangible assets:

- Innovative products and processes (through patents and utility models);
- Cultural, artistic and literary works, including computer software and compilation data (through copyright and related rights protection);
- Trademarks (Collective mark, Certification mark);
- Geographical Indications (for products made within a given geographical area whose characteristics are due to the peculiarities of the environment – for example, Bulgarian rose oil);
- Original, peculiar to the product design (through industrial design rights – such as the bottle of Coca-Cola);
- Distinctive signs of the company such as logo, slogan, motto (through trademarks or geographical indications);
- Microchips (through protection of layout-designs or topographies of integrated circuits);
- Denominations for goods of a given quality or reputation attributable to the geographical origin (through protection of geographical indications);
- Trade secrets (through protection of undisclosed information that is relevant to the functioning of the business).

If innovative ideas, original designs and powerful trademarks of the enterprise are not legally protected by intellectual property rights, then these may be freely and legally used by any other enterprise without limitation. This circumstance doesn't create a competitive advantage for the company owning the intellectual property. On the contrary, when unprotected intellectual property is used by the company, it actually works for the competitors. This is because when the enterprise operates it uses the trademark and develops and imposes it on the market. It develops the trademark's value. When the company fully develops the trademark's value, then it starts to cost more than the value of the entire business¹. For example, the trademark "Nedelya" for the confectionery business is worth 70% of the business value of the company. In such cases, the lack of intellectual property protection over the trademark allows competitors to use it – practically they start to use the good name, goodwill and the loyal customer segment developed by the company through branding. While these actions are unfair competition, they do not violate the use of the trademark because the company has no intellectual property rights over it.

¹ The "Coca-Cola" trademark is estimated to be worth 80 billion dollars.

Therefore when the enterprise receives protection over its intellectual property objects it also receives a certain amount of it. This is because intellectual property rights do not allow the economic exploitation and commercialization of the objects without the express permission of the enterprise (a license) and without payment of remuneration.

Enterprises that have identified and received protection for their intellectual property and use it in their operations have the following economic benefits:

- Strong market position and competitive advantage

Intellectual property gives the exclusive right to prevent others from commercially using a product or service. Thereby reducing competition and enabling the enterprise to establish a position as a market leader.

- Higher profit or returns on investment

Intellectual property is important for enterprises that have invested a significant amount of money and time in R&D, the investments recovery of those activities and for obtaining higher returns from R&D.

- Additional income from licensing or selling (assigning) intellectual property

Intellectual property owner may choose to provide his rights to use intangible assets through a license against royalty payments or sell them to other enterprises in exchange for lump sum payments, in order to generate additional income for the enterprise.

- Creating bargaining power mutually

Owning intellectual property assets that are of interest to others is an advantage in licensing negotiations when the enterprise is seeking authorization to use someone else's intellectual property. In such cases, enterprises often negotiate cross (mutual) licensing agreements. Agreements by which each side authorizes the other enterprise to use its intellectual property assets in the manner specified in the licensing contract.

- Enhanced ability to acquire finance at reasonable rates of interest

In some circumstances, enterprises seeking to commercialize a new technology may be able to more easily raise capital, based on their intellectual property assets, for example, by including information about their intellectual property assets in their business plans while approaching investors, financial institutions, government agencies, etc.

- Credibly threaten or take action against imitators and free-riders
- Positive image for you enterprise

Intellectual property portfolio indicates the level of expertise, specialization, and technological capacity of the enterprise. Developing and maintaining a portfolio is useful in negotiations with business partners, investors and shareholders. This may prove useful for raising funds, finding business partners and raising your enterprise's profile and market value.

To determine the role of intangible assets in the market value the enterprise it is required to conduct regular audits of intellectual property.

INTELLECTUAL PROPERTY AUDIT IN THE ENTERPRISE FOR BUSINESS GOALS

Relatively large number of companies do not know whether they have intellectual property, how to identify it and how to use it. Experience shows that every enterprise and even small companies, such as sole proprietors, own intellectual property (corporate trademark, logo, know-how in business management, quotations or lists of customers). But there are a number of companies whose principal activity is to create or manage intellectual property – this are mostly medium-sized enterprises and conglomerates. Often

large conglomerates form the business for an entire industry, such as pharmaceutical or chemical industries. Their business is to create innovations that are being industrially offered as new products. Conglomerates usually do not operate alone, as the process “from idea to product” requires the involvement of many different economic subjects. These are the small and medium-sized (SMEs) enterprises which are in inter-industry relationship with conglomerates and are predominantly occupied with research and development on new products. In this way conglomerates have the economic power to industrialize the products of SMEs and to commercialize it through the use of other intellectual property objects such as trademarks, industrial designs, geographical indications, and more. Quite often the business in one industry is functionally connected with the business of other industry and, in some cases, industries. For example, the business in the pharmaceutical industry is partially dependent on the growth and technological progress in the chemical industry, as far as the creation of synthetic drugs. This business functional dependence is caused by the creation and use of intellectual property and leads to the formation of network structures such as clusters and local production systems (LPS). For the proper functioning of a network structure, its inter-industry links (and even inter-sectors links) and an individual economic subject such as SMEs is important that everyone who is involved knows his intangible assets. Every enterprise can obtain this information through regular audits of its intellectual property which it owns and uses.

In this sense, for the business goals of the enterprise the intellectual property audit represents a systematic review of owned, used or acquired intellectual property. A systematic review of intellectual property allows a company to assess and manage the risk in the creation and management of their own or another's intellectual property. The information obtained from the audit allows the company to apply the best practices in the management of intangible assets. For enterprises which activities are related to intellectual property, the audit is a mandatory tool for successful management, because the audit assists the process of creating and revising the management strategy of the enterprise through a precise overview of its intellectual property as its main competitive advantage.

The audit will identify the intellectual property of the company by creating an “inventory list” of its intangible assets. The list includes both objects created and legally owned by the company and signed licensing agreements for the use of another's intellectual property. The inventory list will update intangible assets and will enable the enterprise to analyze its competitive advantages and management policy. The intellectual property audit will reduce the risk in decision making because it will analyze:

- how the intangible assets are used or not used by the company

Quite often in practice there are SMEs that create numerous innovations and improvements by supplementing or expanding the scope of existing innovations. Given that innovation can refer to a product or process, the activities of these enterprises is often broad and encompasses both technological innovations. Therefore, the companies sometimes create innovations, for which they receive protection but not actually include them in the production process, i.e. do not use them. These are the enterprises that manage their own intangible assets inefficiently (supplementary or basic patents), because they do not derive their maximum economic potential. When in the company establishes the existence of unused intangible assets in the result of the audit, it is unlikely that it will reorient the production process towards them, but can change its management policy and license them to another company. This will lead to the optimization of its intangible assets and to the retrieving of further benefits from them.

- if the used intangible assets by the enterprise are own or belong to others

Owning intellectual property is always an advantage before the use of another's. Obtaining a license is associated with a number of restrictions and controls over the business imposed by the licensor. At the same time the ownership of intellectual property gives the possibility of multiple realization of consumer value of intangible assets by granting multiple licenses for the same asset. Therefore, the position of a licensor is economically more active than the position of a licensee.

- whether these intangible assets violate the rights of others, or if others violate their rights

When a company uses another's intellectual property, it must do so in a legal way, i.e. be granted a license. Otherwise it risks expensive lawsuits for lost profits and damage caused, and depending on the type of violation even cessation of operation or criminal liability (piracy, industrial espionage, etc.).

- based on all this information to help the enterprise to decide what action should be taken in respect of any intangible asset or portfolio of such assets in order to serve the relevant business objectives.

In this regard, the intellectual property audit of the enterprise reveals unused or underutilized intangible assets, identifies any threats to the end business result and enables business managers to create informed business strategies and intellectual property management strategies, which will support the maintenance and improvement of competitive position on the relevant market.

Intellectual property audit of the enterprise is mandatory for:

- mergers and acquisitions or joint ventures

For example, before the beginning of serious negotiations for a merger or acquisition, partial liquidation and partnership, an audit can significantly increase the value of the enterprise formed as a result from a merger, acquisition or partnership. In negotiations for purchasing an enterprise, an audit can significantly reduce the cost or delay the transaction if it discloses risks and issues relating to intellectual property in the acquired enterprise.

- buying or selling a part of the enterprise or transfer of intellectual property

Before the company buys or sells a part of its business or a product line, it should provide evidence for its ownership over the intangible assets.

- financial transactions (for example, in collaterals, where intellectual property is used as a pledge or as a securitization)
- the release of a new product on the market

When the enterprise offers a new product on the market it is important to take measures not to infringe someone else's intellectual property and to protect its own intellectual property.

- licensing of intellectual property

The licensee company must ensure that the licensor company has the intellectual property rights that are being licensed.

- bankruptcy discharge of personnel, etc.

The audit of intellectual property serves as a planning tool before procedures of bankruptcy, dismissal of employees, liquidation of the enterprise or limitation of the scope of activity of the enterprise.

No matter the goals for which the audit is conducted it is important to comply with the rules of confidentiality – non-proliferation and non-use of information made available during the audit. The end of the audit will provide the enterprise with information on:

- the identified intangible assets in the enterprise – owned and licensed;
- the degree of protection of intangible assets such as intellectual property - patented technologies, trademarks and industrial designs, trade secrets, copyright protection;
- intangible assets that are important to the activity of the enterprise;
- intangible assets with real economic potential that is not part of the activity of the enterprise;
- intangible assets that do not have economic potential, neither for the enterprise nor for partnership business.

The valuation of intangible assets in the audit data will allow the enterprise to assess the value of its business by setting the speed at which the market evaluates or devaluates assets, the amount of royalties for the use of similar of assets, the identification of the assets on the market, marketing the assets and the cost for developing alternative assets. Every enterprise which has information on its portfolio of intellectual property can optimally position itself in the market and interact in the conditions of cluster structures and local production system.

Although we talk about local production systems their boundaries does not always conform to the geographical boundaries of the states. Because of this and due to the nature of some industries, often LPS and their markets stretch across several different countries. This peculiarity in the management of intellectual property raises certain challenges. They are mainly related to differences in national legislation and the necessity of international trade between companies, operating in the international production system.

When the enterprise is part of a cluster or local production system, its activity is likely to be related with the export of products. And even if not so, the business decision to enter foreign markets is an initiative in which there is no shortage of risks and challenges. Exports require a significant investment of financial, managerial and production resources, which is associated with careful planning and execution. In such moments companies often underestimate the issues related to the intellectual property they use. This can become a costly omission, linked to a serious loss of investment, market positions, goodwill and additional profit. Therefore, when the company plans to export its products in other countries, it is rightly to take the measures necessary for the protection of its intellectual property rights in export markets.

Issues related to intellectual property, which the company must settle before exporting activities are as follows:

- protection of intellectual property is not universal

Protection of intellectual property on one territory does not automatically extend to all other territories in which the enterprise wants to expand. Intellectual property rights are territorial rights. When the protected object is granted with a protective document, the scope of action is for the territory mentioned in the document. For all other countries, the object does not have protection and anyone can use it freely. As for the protection of copyright, the object is protected within the territory of its commercial distribution.

- the intellectual property of the company can be owned by another for the target area of export

Before deciding to export the product the enterprise has to check if its intellectual property is not already registered by someone else in the export area. If this is so, then the enterprise may cease export activity or negotiate certain conditions with the holder of the intellectual property rights on the export territory. Verification is an important condition for the enterprise not to violate another's rights when exporting because of ignorance. This will save unnecessary investment and legal costs to the company.

- there are regional or international protection systems

After considering the economic interests from regional or international expansion of market positions, it is advisable that every enterprise uses a regional or international protection system. Intellectual property protection is a costly endeavor and is not cost-efficient to acquire it for areas that are not a target to the business of the enterprise.

- the laws and procedures for the protection of intellectual property rights may be different in different countries

Although there has been significant harmonization of the laws and procedures for the protection of intellectual property rights worldwide, there remain many areas in which there are significant differences between countries. For example, computer programs in certain countries cannot be patented, in other countries they are protected as literary works.

- disclosure information preliminarily without a confidentiality agreement

Preliminary disclosure of information about product innovation or new design to potential trade partners, export agents, distributors or other potential partners abroad before applying for protection or without a confidentiality agreement may lead to loss of intellectual property rights.

- export of licensed products

A common practice for conglomerates is to license the manufacturing of their innovations to SMEs which are operating in the territory of foreign country. In these cases, companies are not allowed to export the products from the licensed production without the express permission of the licensor thereof. Otherwise they can infringe his rights to trade with the same production on the target export market for the enterprises, when the licensor has reserved rights for this area.

- licensing an object that is unprotected in the licensed territory

Many enterprises because of ignorance licensed intellectual property objects to territories, in which they have no intellectual property rights for them. Such error can be detrimental to the company because licensing reveals the nature of their technology and provides the objects to the licensee for use. He may act in bad faith and apply for intellectual property protection for that territory.

- using inappropriate trademark for the export market

Often companies underestimate the importance and meaning of their trademarks. Trademarks from the territory of one country may have an entirely different meaning or even be unacceptable to the territory of another country. The same applies to the design of the product for export.

Successful business is built on prior research and planning, associated with the proper management of intellectual property on local markets as well as on regional and international markets.

In order for network structures like clusters and LPS to form and function properly it is important to have existing research and development activities and access to their results. This determines the existence of two types of connections: from academy to business and from business to business.

Each production system, particularly those based on the production of high-tech products is depending on the availability of the technical and scientific results. Scientific and technical results are created in R&D institutes or universities or by SMEs, often functionally linked with conglomerate structures that they serve. In order for business to be “powered” by the created innovations, it must be able to assess what is its economic interest in investing in their production. Often created innovations are unable to directly serve the interests of busi-

ness. For example, such as drawings, descriptions, models or even scientific developments of the technology and this may become a major obstacle for their industrialization. This is where the “glue” necessary for the formation and functioning of networks structures between the Academy (state institutions, national education policy, etc.) and business (national innovation strategy; strategy for the development of SMEs, etc.) occurs. The glue is the so called technology parks and centers for technology transfer. These are units that primarily perform development activities.

The activity of technology parks is, based on the scientific researches that helped to create the innovation, to develop a prototype of the innovation through its actual implementation in the production process. The production process for the prototype of the innovation takes place within the technology park. Intellectual property rights of the inventor belong to the technology park, which represents a public-private structure (research institutes, government and individual enterprises can take part in it). The technology park promotes the prototype and if the business shows interest in it, the technology park licenses the innovation.

Centers for technology transfer are created in addition to R&D institutes or universities, which create innovations. The centers govern the intellectual property rights with the inventor (researcher) and promote the innovation to the business. If business shows interest, the centers contacts with an enterprise that will carry out the development and will create a prototype of the innovation. The interested enterprise is provided with full information on the necessary raw materials, production capacity, time for implementation and production of the product, production costs and more. If there is decision for use, the technology is licensed to the enterprise.

In both cases of the relationship Academy to business, royalties are derived from technology parks and centers for technology transfer as an essential part is reinvested in research and development activities.

The second type of relationship within clusters and the local production systems is business to business. When big business structures benefits from scientific and technical solutions of small and medium-sized enterprises, then the development activities are most often done by themselves. This is because the majority of SMEs are associated with conglomerates and the work they do is on behalf of big business. After that the transfer of technology is closed and it can be of two types: “power transfer” from small and medium enterprises to conglomerates and “support transfer” from large enterprises to small and medium businesses. Supporting transfer is rather a transfer of technology where businesses use the object without further developed foreign intellectual property. For this use the enterprise receives training and certain limitations. The use is done against remuneration and licensing. In both of these cases, technology companies allocate parts of their profits to reinvest them in research and development activities.

In conclusion it can be said that intellectual property plays an important role in the functioning of the individual business units and the formation of network structures such as clusters and local production systems. Identification, protection and management of intellectual property represent a significant competitive advantage for the enterprise, and from there for the network structure in which the company operates. Intellectual property is an important economic resource and a way of protection that is actively involved in the sustainable economic development and growth.

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INNOVATIVENESS OF CLUSTERS IN POLAND – STATE-OF-THE-ART AND DEVELOPMENT PROBLEMS

*Aleksandra Nowakowska*¹

CLUSTERS – IDEA AND OPERATING MECHANISMS

The idea of a cluster is deeply rooted in considerations of many schools of thought that arouse as a legacy of numerous interdisciplinary research trends. It makes reference, among the others, to the Italian school of industrial districts, French school of studies over entrepreneurial and innovation milieus or the California school focused on new industrial spaces. References to the idea can also be traced in considerations on a learning city or on a regional system of innovation.

Rich literature devoted to the subject provides an ambiguous definition of a cluster. In a wide array of definitions of the term² two main trends feature. The first one concentrates around the writings by M. Porter and focuses on competition and collaboration-based relations and on the location. The second trend, more heterogeneous, is the outcome of the approach adopted by the OECD and stresses the network nature of a cluster.

The interpretation proposed by M. Porter, the most prominent promoter of the phenomenon,³ describes cluster as a “geographically proximate group of interconnected companies and associated institutions in a particular field linked by commonalities and complementarities”⁴. It is a geographic cluster of interconnected companies, specialized suppliers, service providers, companies operating in related sectors and institutions associated with them (such as universities, industrial associations, supporting institutions), which compete among one another but also collaborate (based on the principle of cooperation or cooptation).⁵

According to M. Porter, a cluster is based on two the main pillars: 1) complementarities-based ties among actors in geographic proximity, and 2) the existence of mutual relations based on both collaboration and competition among co-located companies. The combination of the two dimensions enhances the competitiveness of companies and enterprises based in a cluster compared to entities operating within different structural organizations. Thus, the idea of a

¹ Prof., Dr hab, Department of Regional Economics and Environment, University of Lodz, Poland.

² Examples of the analyses and various approaches to the idea of a cluster include, e.g., A. Torre, First steps towards a critical appraisal of clusters, [in:] The economics of regional clusters – networks, technology and policy, E. Elgar Edition, 2008; Moulaert F., Sékia F. (2003) Territorial Innovation Models: A Critical Survey. *Regional Studies*, 37/2003; Bekele G.W., Jackson R.W. (2006) Theoretical Perspectives on Industry Clusters. Regional Research Institute, Research Paper 2006-5, West Virginia University; M. Gorynia, B. Jankowska, Klastry a międzynarodowa konkurencyjność i internacjonalizacja przedsiębiorstwa, Difin Publishing House, Warsaw 2008; A. Sosnowska, S. Łobesko, Efektywny model funkcjonowania klastrów w skali kraju i regionu, Expert opinion for the Ministry of Economics, Institute for Sustainable Technologies – National Research Institute in Radom, Radom 2007.

³ M.E. Porter promoted the idea of a cluster in his book *The Competitive Advantage of Nations* of 1990, and then developed it in his further writings. See, e.g., Porter M.E. (1990) *The Competitive Advantage of Nations*, New York, The Free Press; Porter M.E. (1998) Clusters and the New Economics of Competition, *Harvard Business Review*, November-December, s. 77–90; Porter M.E. (2000) Location, competition, and economic development: Local clusters in a global economy, *Economic Development Quarterly*, 14 (1), pp. 15–34.

⁴ M.E. Porter, Clusters and the New Economic Competition, *Harvard Business Review*, November-December 1998, p. 78.

⁵ I.R. Gordon, P. McCanna, Industrial cluster: complexes, agglomeration and/or social networks, *Urban Studies*, Vol. 37/2000

cluster consists in the coexistence of collaboration and competition-based relations in various dimensions and between various operators. These two types of economic links are the key mechanism for the development of clusters.

M. Porter's theory of clusters is based on the scheme of economic development embracing four fundamental components, which ensure competitive advantage.¹ These are: 1) classical production factors, such as: accumulation of capital, skilful workforce, technical and communication infrastructure; 2) demand conditions, mostly sophisticated regional market but also possibilities to compete on external markets; 3) the presence of related and supporting industries, which produce the network of collaboration and rivalry in the region; and 4) economic strategies of both firms and the cluster, which should be up to global competition and to the economic structure of the region.²

The second analytical trend invokes the network structure of a cluster and has developed based on the OECD works³. In this approach, a cluster is a network of strongly interconnected companies, entities that produce knowledge (universities, research institutes, engineering companies), bridging institutions (brokers and consultants), and clients connected with one another in a value added production chain. A network allows for a quick and cheap utilisation of material and immaterial resources as factors in the production of goods and services. Operating in a network, in particular for SMEs, creates conditions for market rivalry with big economic operators. The approach promoted by the OECD strongly stresses the open nature of clusters as a key characteristic of clustering and network dynamics, especially in innovative sectors. In this approach, contrary to Porter, relations of competition and cluster location are less important. It also pushes informal interactions between organisations or individual actors to the margin.

Features and mechanisms characteristic of a cluster as a type of economic activity organization include:

- Coexistence of collaboration and competition – firms grouped in clusters compete, on the one hand, and collaborate in the same fields, on the other hand;
- Interactions (horizontal or vertical ties) and collaboration among actors, which release synergy mostly in the diffusion of knowledge, attracting new companies, movements of human capital;
- Spatial concentration conducive to the establishing of interactions among operators in the cluster, which lead to a variety of positive external effects;
- Domination of inter-company ties within the value chain; operators in clusters develop a system of mutual relations focused on common or complementary products, technological processes, common distribution channels or suppliers;
- Sectoral affinity and specialization; clusters comprise companies, which operate in the same or similar manufacturing or service industries, which contributes to the enhanced efficiency and deeper specialisation of a cluster concerned;
- Voluntary association and membership to a cluster; participants to a cluster retain their independence and, in most cases, ties among them are informal.

Operating within a cluster generates numerous, difficult to grasp, positive processes and makes the value added of a cluster bigger than the sum of individual value added of its participants. Benefits of a cluster can be summed up in the following three fundamental groups:⁴

1. Higher productivity of companies or sectors within a cluster. Clusters offer ready access to specialised inputs and workforce as well as to market or technical data. They enable more efficient division of functions among companies involved, complementarities of offered products, common marketing operations, better access to public institutions and goods. Coex-

¹ This is the so called Porter's diamond.

² J. Chądzyński, A. Nowakowska, Z. Przygodzki, *Region i jego rozwój w warunkach globalizacji*, Wyd. Cedewu, Warsaw 2008, pp. 35 and 182.

³ OECD (1999) *Boosting Innovation: The Cluster Approach*, Paris: OECD; OECD (2001) *Innovative Clusters: Drivers of National Innovation Systems*, Paris: OECD.

⁴ M. Porter, *Porter on Competition*, Polish edition by PWE, Warsaw 2001, pp. 265–281.

istence of rivalry between companies within a cluster enables permanent benchmarking and fosters the productivity of individual companies. Repetitive contracts, continuous collaboration among companies reduce risk and opportunistic behaviour as the firms are oriented at long-term collaboration and they care more for their reputation.

2. Enhanced innovative capacity of operators within a cluster. Companies in a cluster observe their technical and market behaviours and by detecting new, more efficient solutions in the neighbourhood they improve their own performance. New ideas, concepts and innovations disseminate much more quickly in a cluster and experimenting, collaboration in developing new solutions is less costly and less risky. Operators in a cluster often complement each other in developing innovations. The diffusion of knowledge and innovation proceeds faster and more efficiently as a result of direct contacts, exchange of experience, labour, and ideas. Competitive pressure in a cluster forces out the implementation of innovative solutions, which give the competitive advantage over other operators.

3. Favourable conditions for the creation of start-ups. Clusters enable easier market entry by giving access to information and cooperation links. Benefits generated by a cluster attract new companies from related sectors and complementary entities. The variety of operators, sectors and processes within clusters have resulted in the multiplicity of their models and operating typologies.¹ For example, clusters are grouped based on their development stage – life cycle of a cluster (embryonic, mature, and declining clusters), territorial scope (local, regional, national or international clusters) or an industry, in which they operate (clusters in traditional industries, in hi-tech industries). Clusters are also classified from the point of view of internal and external ties within them, stages of manufacturing chain, competitive position or the ability to create new jobs.

The emergence of clusters is an endogenous phenomenon. Their sources can be traced in various conditions or resources but two key elements prevail: firstly, the territory, nature and resources in an area, specific potential, local needs, skills, market, and economic traditions; secondly, the industry or an impulse originating from a big economic operator.

CONCEPTUALIZING OF AN INNOVATION CLUSTER

Recent explosion of interest in research on clusters and their operation recorded in the last decade has shown that clusters are structures, which exceptionally efficiently boost innovativeness and technology transfer. As a result, special attention has been awarded to innovation clusters (innovative clusters) also referred to as research-driven, research intensive or knowledge-based clusters.

Structures and operating mechanisms of an innovation cluster are similar to those of a „traditional” cluster. Its participants may be all actors, who contribute to the dynamics of innovation. The structures are composed of R&D units, universities, enterprises able to generate innovation and absorb new technologies and supporting institutions (such as science and technology parks, innovation incubators or technology transfer centres) as well as industrial or service enterprises, whose activities do not necessarily directly require research and development. For the needs of the 7th Framework Programme for Research and Technological Development, the European Commission defined a research-driven cluster as a local/regional structure consisting of research units (universities, research institutions, and commercial laboratories), eco-

¹ For more see: A. Sosnowska, S. Łobesko, Efektywny model funkcjonowania klastrów w skali kraju i regionu, Expert opinion for the Ministry of Economics, Institute of Sustainable Technologies – National Research Institute in Radom, Radom 2007, pp. 7–9; T. Brodzicki, S. Szultka, Koncepcja klastrów a konkurencyjność przedsiębiorstw, Gdansk Institute of Market Economics, Gdansk 2002

conomic operators and local/regional authorities¹. A cluster may also include other local actors, such as economic associations, Chambers of Commerce and Industry, financial institutions or consulting firms operating in a specific field of science and technology. The interpretation of a research-driven cluster highlights the role of public authorities and the territorial context of such an innovation cluster.

The fundamental and direct objective for such clusters is to establish collaboration-based relations to generate knowledge and innovation that could be exploited in the economy. Clusters are systems of dense network ties, where, due to facilitated flow of information, all sorts of innovations are generated more frequently than anywhere else. The approach clearly stresses the role of formal institutions, which impact the emergence, operations and development directions of research-based clusters. Such institutions are, among others, financing institutions (banks, venture capital funds, “business angels”), law firms (especially those, which operate in the area of intellectual property rights), and surveillance bodies (standardisation committees). Institutional context of research-based clusters’ operations is largely diversified in individual countries or even in regions and significantly impacts the dynamics of innovation.²

Features that distinguish an innovation cluster from a classical form of such collaboration include: 1) the industry, in which it operates: usually it is a highly innovative hi-tech industry (although innovation clusters may emerge also in industries generally considered the least innovative, e.g., food processing or construction); 2) the structure of entities participating in a cluster, where the leading role is played by R&D sector strongly supported by business environment institutions, and 3) the objective of a cluster focused on generating broadly understood innovations and technology transfer.

Being a part of an innovation cluster means the entities are much more capable of absorbing, producing and diffusing knowledge and innovation.³ Ties within a cluster and geographic proximity facilitate the generation and exchange of new ideas, concepts, and information. Spatial proximity of cluster participants enables continuous learning and rapid dissemination of knowledge and information. Direct relations, often informal, help monitor sector/industry performance or the competition and benchmark one’s own operations against those of the competitors. Non-commercial relations, based on the exchange of market information or tacit knowledge are decisive for innovation clusters. In knowledge and innovation based clusters we often deal with the emergence of new innovative companies, the so called spin-off and spin-out businesses. New economic operators, who use the knowledge, innovation and technologies created in a cluster, are the testimony of the maturity of such a form of economic arrangement.

Two processes, contradictory at first glance, coexist in innovation clusters: exploitation and exploration. Exploitation consists of efficient use of assets and capabilities, while exploration means the development of new capabilities.⁴ Paradoxically, exploitation necessitates a stable organisational structure, unambiguous, clear operating rules while exploration needs contradictory processes and activities: loose structures to enable new reconfigurations, create new behaviour patterns and rules. The coexistence of the exploitation versus exploration logic is the focal point for how we perceive and analyse clusters and in innovation clusters exploration logic, as their primary operating mechanism, provides the dominant perspective.

¹ A. Bąkowski, Klaster badawczy, [in:] K.B. Matusiak (ed.), *Innowacje i transfer technologii. Słownik pojęć*, Publishing House of the Polish Agency for Enterprise Development, Warsaw 2008, p. 170 and www.cordis.europa.eu/fp7/capacities

² Nowakowska A. *Regionalny wymiar procesów innowacji*, Publishing House of the University of Lodz, Lodz 2011, p. 153.

³ *Innovative clusters: drivers of national innovation systems*, OECD Publication, Paris 2001.

⁴ Nooteboom B., *Innovation, learning and cluster dynamics*, Discussion Paper No 44, Tilburg University, April 2004, p. 5.

Dynamically operating and developing clusters become the key determinant of the ability of a country to attract foreign investment, generate new technological knowledge, generate investors' interest in innovation (venture capital), and to benefit from international mobility of skilled labour.¹ The structures are perceived as a basic form of boosting innovation in less developed economies and improving the efficiency of R&D sector. Creation of research-driven clusters became one of the pillars of economic and R&D policies of the European Union.²

Cluster structures offer non-materialised exchange of information and knowledge, in particular tacit knowledge, between the actors. The openness of clusters and their participation in other networks creates opportunities to seek and acquire elements of new knowledge fundamental for innovation. These benefits are not provided by the involvement into electronic networks as they do not enable the exchange of tacit knowledge. To be efficiently transferred, tacit knowledge requires spatial proximity and physical, direct contact, which facilitates getting to know each other, winning partner's trust and the selection of appropriate actors to create credible foundations for cooperation and exchange.

CLUSTERS' DEVELOPMENT IN POLAND

Because of the nature of the arrangement, identification of local production systems remains a major research challenge. Quantitative methods (based on calculating the location quotient or input-output analysis) usually produce superficial results and conclusions must be extended with primary data collected from qualitative and expert studies.³ The above difficulties lead to divergences and allow only estimating the population of local production systems.

Based on the so far studies we may estimate, however, that at the turn of the first and second decades of the 21st century in Poland there were ca. 50 local production systems and ca. 70 the so called cluster initiatives, i.e., projects at very early stages, with respect to which we cannot unequivocally anticipate their future shape (see Figure 1).⁴ Local production systems can be identified in each region (voivodeship) in Poland with relatively minor spatial differentiation. Nevertheless, we can observe that relatively the biggest population of local production systems is based in well developed regions (Wielkopolska, Lower Silesia, Pomerania) and in Eastern regions of Poland. In the latter location, clusters operate mostly in traditional industries with some exceptions, among which the most spectacular is the cluster of aviation technologies *Aviation Valley* in the region of Subcarpathia (Podkarpackie) based in Rzeszów.

When it comes to the *age* of local production systems, most of them are relatively young initiatives. For the two editions of *Cluster benchmarking in Poland*, their representatives declared that the majority of such networks were created between 2006 and 2008.

The dynamic development is certainly the outcome of active regional policy and central government policy, many programmes and financial support available for such initiatives originating, to a large extent, from the European Union funds allocated for enterprise devel-

¹ OECD (1999) *Boosting Innovation: The Cluster Approach*, Paris: OECD, p. 5.

² It is expressed, e.g., in the priorities of the EU Seventh Framework Programme for Research and Technological Development.

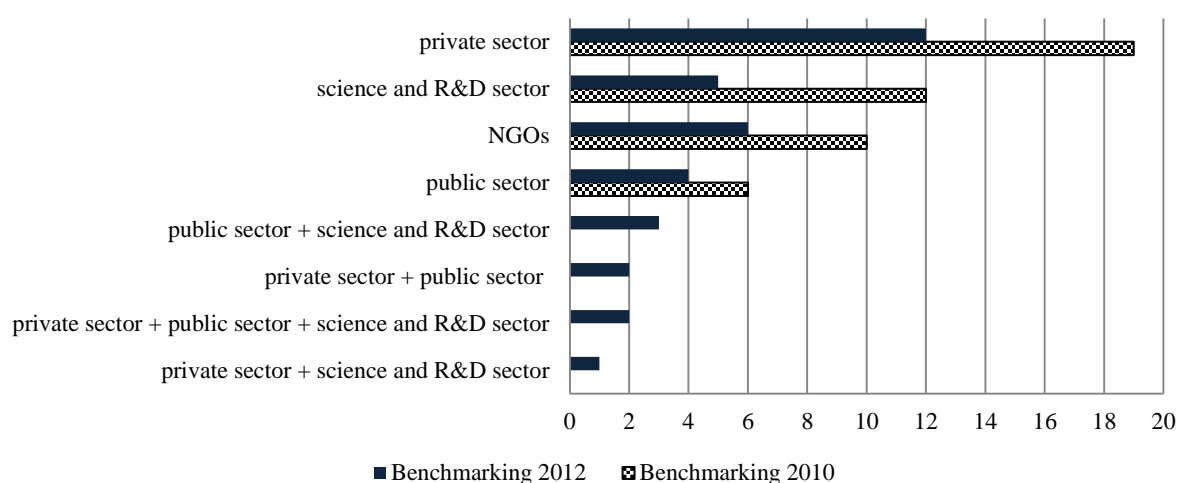
³ More on the advantages and disadvantages of quantitative and qualitative methods of identifying clusters and on the complexity of local production systems identification methodologies see: Nowakowska A., Przygodzki Z., Sokołowicz M.E., *Mapping Clusters in Poland. A Comprehensive Methodological Approach*, [in:] Markowski T., Turala M. (eds.), *Theoretical and Practical Aspects of Urban and Regional Development*, Polish Academy of Sciences – Committee for Spatial Economy and Regional Planning, Warsaw 2009, pp. 265–280.

⁴ Nowakowska A., Przygodzki Z., Sokołowicz M.E., *Mapping Clusters...*, op. cit.

opment. Consistently, vast majority of the LPS are at initial development stages. Only several clusters can be considered mature with relatively stable network of collaborators and internal links producing measurable market effects.

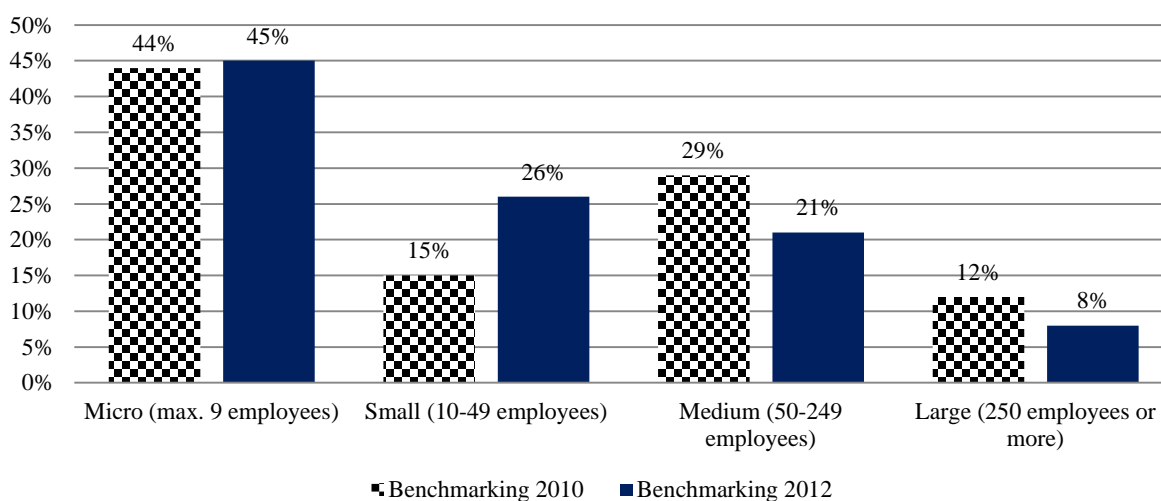
In Poland, local production systems in most cases are *initiated by private sector operators*, who created clusters either on their own or took part in their development (Diagram 1). This is the path followed by ca. 40% of LPS. R&D centres and public sector were also active in initiating clusters. The observed tendency for clusters to be created as joint ventures of universities, business and the public sector should be very much welcome.

Local production systems develop either as bottom-up initiatives resulting from the needs of business community or as top-down initiatives (launched by the public sector) or as a result of the mix of the two. In recent years the number of bottom-up initiatives significantly increased, confirming entrepreneurs' enhanced interest in this type of collaboration.



Source: Own composition, based on: Deloitte, Cluster Benchmarking in Poland – 2010..., op. cit; Hołub-Iwan J.(ed.), Cluster Benchmarking in Poland – 2012..., op. cit.

Diagram 1. Initiators of local production systems in Poland



Source: Own composition, based on: Deloitte, Cluster Benchmarking in Poland – 2010..., op. cit; .Hołub-Iwan, J.(ed.), Cluster Benchmarking in Poland – 2012..., op. cit.

Diagram 2. Enterprises by the size of employment in local production systems in Poland

Clusters are composed *mainly of enterprises*, which represent more than 75% of all entities involved. The remaining group are business environment organisations (7–8%), R&D centers (8–9%) and other units of local government or private individuals. In most cases, local production systems include enterprises, business environment organisations and R&D centres.

Local production systems in Poland are dominated by micro (employing up to 9 people) and small (employing up to 49 people) enterprises (Diagram 2). The share of medium-sized and big companies is decreasing, which additionally reinforces the domination of micro and small businesses in Polish clusters.

It is worth noting that Polish local production systems emerge in various sectors of the economy and it is difficult to identify a clear pattern of it. Analysis of dominating sectors of Polish cluster's activity indicates, that LPS from both traditional and innovative sectors appear here. Among LPS functioning in the country, many of them operate in technology and knowledge-intensive branches, like: IT, aviation industry, medical sciences, biotechnology, energy, automotive industry, printing or marketing related services. However, the other group of clusters has emerged in low-technology sectors: food processing, construction, hotels, catering and tourism.¹ This dichotomy may be a consequence of "urban/non-urban areas" division. The clusters whose core is located in bigger cities operate in more innovative sectors while in weakly urbanized or rural areas – traditional clusters prevail.

However, it is difficult to conclude about the level of innovativeness, using only statistical industry and services classification.² It must be stated that in some cases, clusters whose core derive from low-technology branches, have also declared engagement in research and development of new technologies.

The activity of Polish clusters, perceived through regions, in which they are based, remains largely differentiated. We can detect, however, a strong correlation between the industry, in which a cluster operates and regional specificity, economic history of the region or its industrial focus in the past. The Lodz Region can be used as an example, where one cluster was identified in textile and apparel industry, typical for the capital city of the region, and one media cluster relating to film industry tradition of Lodz. In the region there are also 2 LPS dealing with fruit processing in areas famous for such activities.

Similar industry specialisation can be observed in Subcarpathia, where 2 clusters were identified in aviation industry developed based on the long-lasting tradition of the region; in Warmia-Mazurian region clusters exploit natural concentration of food processing businesses in this area of high quality food produced in the most environmentally-friendly part of the country. Concentration of furniture companies is connected, among the others, with access to raw materials (timber), renewable energy clusters emerge in regions naturally predestined to such business activity. In West Pomerania there is a marine cluster and a cluster focused on chemical industry, well established in the region. IT industry remains the least "resistant" to regional specificities as its inclinations to develop local cooperation relationships among businesses are equally strong in any region. Polish clusters are deeply rooted in the tradition and in the past of their respective regions and their growth is very much determined by economic situation in the immediate neighbourhood. As shown by the studies, as many as 85% of clusters considered regional conditions, potential and traditions important or fundamental for their growth.³

¹ Nowakowska A., Przygodzki Z., Sokołowicz M. E., Mapping Clusters..., op. cit., pp. 265–280.

² Like OECD's High Technology Sector and Products Classification or Knowledge Intensive Services (KIS) used by Eurostat.

³ Nowakowska A., Regionalny wymiar procesów innowacji, Publishing House of the University of Lodz, Lodz 2011, p. 157.

INNOVATIVENESS OF LOCAL PRODUCTION SYSTEMS IN POLAND

Innovation commitment of clusters in Poland largely varies and depends mainly on the structure of their membership, development stage and industry. Pro-innovation activities, in various forms and scope, were declared by ca. 80% of clusters in 2012¹, while in 2010 only 20%. It confirms increasing market maturity of LPS in Poland, and the results are especially favourable for the group of mature clusters, in the growth stage, with stable and sustainable types of cooperation. Small clusters operating in traditional industries remain indifferent to research and innovation activities.

Almost half of clusters operating in Poland are active in industries categorised by the OECD as high or medium-innovative.² In most cases their core industries include: IT, aviation, telecommunications, environmentally-friendly power generation or medicine. Structure of clusters by industries shows big innovation potential of their members.

Polish clusters focus their activities on two main areas: joint marketing activities (advertising, fairs and exhibitions, trade missions) and joint initiatives in the field of human resource development (training courses, workshops, conferences, knowledge, and experience exchange). In this context direct R&D activities, implementation of innovations or technology transfer are important but still remain secondary for clusters.

For LPS we can observe strong involvement in areas that indirectly contribute to innovation and to generating resources of formal and informal knowledge. In 2010, 80% of clusters in Poland declared that for them the key benefit of being in the structure consists in the access to tacit knowledge, which facilitates establishing business relations, gives access to unofficial information, shortens time and reduces cost of executing market transactions.

In 2012 almost 90% of clusters declared they undertake steps in this area.³ It is a positive sign as such benefits are the essence of LPS arrangements and a classical field where entities operating in clusters may achieve an advantage; these are also grounds for new products, processes and technologies.

In the area of creating knowledge and innovation, joint training courses, workshops, sectoral conferences or study visits remain the leading type of clusters' activity, which is conducive to generating knowledge and information exchange. It is an approved and stable area of cooperation for some years. For less than 75% of LPS, creating cognitive proximity, building common pools of knowledge resources are the major areas of activity.

Although pro-innovation activities of Polish clusters are still little developed, within recent two years we can observe high dynamics of positive changes in this area. For example, in 2010 only 10% of clusters in Poland owned legally protected innovative solutions while in 2012 more than 40% of clusters declared such innovations. In total, LPS in Poland declared 752 innovations protected with IPR in 2012.⁴

Positive changes were also observed with respect to joint R&D projects. In 2010 only 20% of clusters were involved in R&D projects financed from external sources, while in 2012 the activity was declared by almost 70% of clusters. In the dominating group of clusters these are the first (and single) attempts of developing joint innovative solutions. They are carried out mostly in LPS with R&D units in their structures, which received

¹ Hołub-Iwan J.(ed.), *Cluster Benchmarking in Poland – 2012*. General report, Polish Agency for Enterprise Development, Warsaw 2010, p. 66. Available at: http://www.pi.gov.pl/PARPFiles/file/POLISH_INNOVATION_PORTAL/Clusters/Raport_eng.pdf. Accessed 04.08.2012

² It is hard, however, to unequivocally conclude about the level of innovation using only industry-specific classification as there are clusters, which conduct research in new technologies, new products while operating in low-innovative industries (e.g., food processing or construction).

³ Hołub-Iwan, J.(ed.), *Cluster Benchmarking in Poland – 2012*...., op. cit, p. 64.

⁴ Hołub-Iwan, J.(ed.), *Cluster Benchmarking in Poland – 2012*...., op. cit, p. 122

external financial assistance for such undertakings. The activity strongly correlates with the industry of a cluster in question; the highest innovation in the industry of a cluster, the bigger R&D expenditure.

The trend is also confirmed by the share of R&D expenditure in total spendings on innovation in the core of the cluster. In six cases R&D expenditure share exceeded 25% in recent two years.¹ On the other hand, however, almost half of clusters do not allocate their own resources on R&D. In general, the allocations are small and can be traced only in clusters in the growth/maturity stage.

Main areas of direct innovative activities in clusters are joint development of innovative products and technologies, which for almost 30% of LPS are the primary activities. Compared against the survey of 2010, this activity area improved the most (the highest increased in benchmark value). Interestingly, clusters focus less on marketing and organisational innovations, which, because of the diversity of entities in a cluster are difficult to implement.

Compared to 2010, employment in R&D in the cluster core slightly diminished. The drop is symbolic and connected mostly with the verification of market competences of the research staff. The performance of Polish clusters is little satisfactory when it comes to establishing innovative companies. In 2012 start-up and spin-off companies operated in only five clusters.²

In recent two years, the availability of laboratories for cluster members significantly improved. In 2010 ca. 80% of clusters declared poor or zero access to such infrastructure, while in 2012 ca. 40% of clusters assessed their own access as good or very good, while for 35% of clusters the access was moderate but satisfactory.

The structure of clusters is dominated by enterprises and various supporting organisation (Chambers of Commerce and Industry, development agencies, local and regional authorities). R&D units represent ca. 10% of entities – members to clusters and the fraction have not changed recently. Units from the research industry rarely play the leading role in clusters. Only in several cases they are leading partners and animators of cluster's activities. Half of the population of surveyed local production systems were initiated or co-initiated by R&D entity, which may be indicative of innovation-focus of these structures.

Clusters with R&D units are usually more mature in terms of organisation. R&D specificity forces out professionalism of relationships, competence and forms of communication. Hence clusters with R&D in their structures are more formalized in their operations and organization (which is reflected, e.g., in bigger number of staff holding administrative positions in cluster: coordinator, office staff).

Innovation in cluster correlates with its size. The bigger a cluster, the bigger the scope of activities connected with launching new products, technologies, and processes. Correlation between types of entities in a cluster and innovation activities is also clear. Naturally, clusters dominated with an R&D unit perform much better when it comes to the creation of knowledge and innovation.

Optimistically, more than half of clusters declare that joint innovation and R&D activities remain one of their priority strategic objectives in a long-term perspective although at present they are not in the forefront of their activities. Clusters declare the wish to implement joint innovation and investment projects in the future, knowledge and technology transfer, strengthening cooperation relationships, progress in international cooperation and internationalisation of clusters, which will become leading areas of their activities in the future.

The major barriers to the boost in innovation of local production systems in Poland are:

- low propensity of entrepreneurs to cooperate, lack of trust between business partners (low level of social capital),

¹ Hołub-Iwan, J.(ed.), *Cluster Benchmarking in Poland – 2012*..., op. cit, p. 166

² Hołub-Iwan J.(ed.), *Cluster Benchmarking in Poland – 2012*..., op. cit, p. 167.

- misunderstanding when it comes to cooperation and strong competitive culture, which prevents from perceiving cooperation as an opportunity for joint development or for improving an individual competitive position,
- weak and immature cooperation networks with weak instruments encouraging to intensify individual activities,
- lack of experience and cooperation formulas with R&D units, both in organisational terms and in intellectual property rights,
- reluctance of R&D units, funded from the central budget, to get involved in market undertakings, which require modifications in operational mechanisms and changes in their organisational culture and routines,
- poor availability of financial instruments that could help finance high risk undertakings, such as: venture capital funds, business angels.

CONCLUSIONS

Among the major advantages of the LPS in Poland we should point to their activities connected with developing internal communication, which enables building and exchanging tacit knowledge and experience. The same can be said of various forms of developing common competences and knowledge (through the organisation of joint training courses for the workers, workshops, regular industrial conferences), which are highly appreciated and renowned and which provide a good basis for the development of innovation. Clusters are becoming more and more active in direct activities designed to generate innovation and technology transfer, their internationalisation has also improved.

Despite these successes, clusters in Poland remain a relatively young and weak economic phenomenon in the area of building up the innovativeness of the Polish economy. Their position and activities, although gradually improve and intensify, are still not up to the challenges of contemporary economics. Strong reorientation of the development policy proposed in the Europe 2020 Strategy implying new ways and tools to foster innovation in clusters proposed within the framework of the cohesion policy for the period 2014–2020 provides the opportunity for innovation development of local production systems.

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A CROSS-BORDER INNOVATION CLUSTERING ECONOMICAL POTENTIAL

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This paper summarizes the 3rd industry revolution approach in regional development. Main focus is put on the following issues: cross-border innovation clusters, digital supply chains, fabrication laboratories or fabulous laboratory (fab labs), and open source hardware. The considerations are illustrated with the author's concept of smart organization, and the perspectives of developing digital cross-border innovation clusters linking Siberia and Poland.

INTRODUCTION

The problem of research. This article tackles the issues related to the design of regional innovation policy supporting development of digital supply chains, fab labs, and application of open source hardware, their creation in the form of smart organization on the basis of cross border innovation clusters. The starting point for the discussion is 3rd Industrial Revolution. The scale of considerations is region.

The object of research. The paper explores the concepts of 3rd industrial revolution, standardization efforts in smart manufacturing, and smart-manufacturing hubs projects.

The goal of research is to identify common features of 3rd industrial revolution in smart manufacturing, and define a roadmap for implementation of 3rd industrial revolution concept in the smart cities and regions.

The objectives of the article are as follows:

- to review and discuss the concepts of 3rd industrial revolution;
- to identify best practices concerning smart manufacturing;
- to define roadmap of developing digital Cross-Border Innovation Clusters between Siberia and Poland.

Methods of the research, used in the article, include the issue analysis, desktop study (review of academic papers, current projects initiatives, and standardization initiatives), case studies, and state of art of 3rd industrial revolution in context of regional policy.

Relevance of the research. Smart, sustainable and inclusive regional growth in the closed future will be based on ideas taken from 3rd industrial revolution. In smart era cross-border innovation clusters takes over many of the tasks carried out by traditional innovation instruments, like technology parks, innovation centers, technology accelerators at the same time offering new opportunities. The research of cross-border innovation clusters is important from different points of view, also taking into account the development of the regions. This may contribute to the emergence of new regional policy instruments.

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THE 3RD INDUSTRIAL REVOLUTION

The 3rd Industry Revolution problems are the subject of research of many scientists. Jeremy Rifkin describes the 3rd Industrial Revolution as a manifestation of the Internet of Things and Services aiming at handling of electricity [Rifkin, 2011]. Rifkin is paying particular attention to the two factors of the revolution. The first is the rapid development of information and communication technologies (ICT) enabling new organization of the flow of information between enterprises around the Internet. The second is the new energy technologies and the dispersed structure of the power system converged with new ICT technologies enabling small scale energy production in the local environment (smart grid innovation clusters), and digital control of energy demand. According to Rifkin, the 3rd Industrial Revolution is characterized by widespread digitization of individual communication and enterprises communication, and organizing energy system on a base of digital and electrical grid into distributed global network of individual and enterprises prosumers of energy. According to [Giordano et al., 2013] and the author, in recent years there were established the following important smart grid projects in Poland:

- The metering data processing and central repository concept (2010–2011), by PSE Operator S.A. aimed in preparing cost benefit analysis, and legal and organizational framework for implementation of smart metering data processing and central repository concept.
- The introduction of emergency Demand Side Response (DSR) programs (2011–2012), by PSE Operator S.A. aimed in obtaining experiences of DSR programs.
- The Smart Peninsula pilot project of Smart Grid deployment at ENERGA-OPERATOR S.A. (2011–2012), by ENERGA-OPERATOR S.A. aimed in checking the basic elements of medium and low voltage grids in the Hel Peninsula, including central IT system integrated with SCADA, telecommunication infrastructure, automation, control, and metering equipment, distribution generation facilities (photovoltaic cells, wind turbines, heat pumps, smart street lighting, electric vehicle charging stations).
- Establishing AGH UST Centre of Energetics at the AGH University of Science and Technology, Cracow, Poland (the completion of the first phase was announced in November 2014), as a part of the European Institute of Innovation and Technology (EIT) – distributed research institution, inspired by the Massachusetts Institute of Technology (MIT) being one of the symbols of American superiority in science and technology.
- AGH UST and GE signed in October 17, 2012 agreement on cooperation in development of Smart Grid concept, focused on building smart grid infrastructure for conducting research and development activities, and creation of [Smart Grid] Green AGH UST campus.

Neil Gershenfeld considers the 3rd Industrial Revolution in the context of widely accessible fab labs, enabling personal digital manufacturing [Gershenfeld, 2005]. The idea of fab labs has been advanced by Neil Gershenfeld et al. from MIT in 2002. Gershenfeld claims that means for industrial production will be wide accessible through the development of opensource hardware initiative, leading to the transformation of the society into opensource hardware community, understood as a new generation of manufacturers. They shall use open source software to control the machines, and share their ideas, designs and manufacturing experiences around the world through web tools and videoconferencing. Fab labs are a global network of local laboratories. In the sense of cross-border innovation clusters, fab labs could be considered as means of regional policy, which boost the activity of regions by providing to individuals or enterprises free access to digital fabrication tools in the estab-

lished pools, operated by groups of individuals, universities or public-private initiatives [www.fablabinternational.org]. According to Peter Troxler [Troxler, 2013], fab labs will be transformed into new organization of the ecosystem (cross-border innovation clusters) through the following stages: building effective forms of collective action and self-organization for fab labs, breaking free from traditional systems of manufacturing and creating value and creatively design new systems that tap into the capabilities of fab labs, protection of the interests and creative freedom of makers ensuring wide access to new knowledge, processes and products, appropriately and effectively creation and capturing value, achieving equity and fairness. In Poland, there are a few fab labs projects, including FabLab Warszawa [fablab.waw.pl], FabLab Kielce [www.fablabkielce.pl], FabLab Łódź [fablablodz.org], FabLab Trójmiasto [www.fablabt.org]. In Siberia, similar project has been established in Krasnoyarsk [fablab24.ru].

Chris Anderson also treats the 3rd Industrial Revolution as a new form of manufacturing: digital and personal [Anderson, 2010]. Anderson introduces new idea of pooled manufacturing resources. This leads of course to the concept of innovation cluster equipped with digitally controlled machines, enabling new manufacturers to turn their ideas from computers into products. The aim of developing innovation clusters in that sense is transforming top-down organization of society into distributed and collaborative relationships. Innovation clusters would be developed around the initiatives of open source hardware and open design, resembling to those of the TAPR radio amateur community [www.tapr.org], et al. The flagship project and symbol of open hardware initiative seem to be microcontroller Arduino [www.arduino.cc], which hardware diagram is distributed under the Creative Commons Attribution Share-Alike 2.5. Innovation clusters shall coordinate open hardware movement, aiming in enhancing the commercialization of products locally, enhancing mobilization of local knowledge, supporting local business developments, contribute to the local workforce development, increasing opportunities for residents to live, work, study and play in region, and acting as a catalyst for downtown revitalization and to provide access to facility to new ideas and end products. In Poland, it is worth mention about the Idea Lab Polska project [idea-lab.pl], aimed mainly at building 3D printers, and CNC plotters, and Global Village Construction Set (GVCS) – platform enabling fabrication of industrial machines developed by educated in Princeton Polish physicist Marcin Jakubowski [opensourceecology.org/wiki-gvcs.php].

Distributed manufacturing doesn't mean the end of manufacturing corporations. The response of traditional industry to the concepts of fab labs, open source hardware et al. is the concept of Industry 4.0 from 2011 [Baum et al., 2013] – forward-looking vision of manufacturing based on the concepts of the Internet of Things and Services (IoTS) [Ashton 2009], and Cyber-Physical Systems (CPS) [Lee, Seshia, 2011], in which physical equipment of manufacturing environment is treated as smart objects with unique IPv6 addresses, located physically in cross-border innovation clusters (manufacturing pools) with broadband internet access, autonomously exchanging information, triggering actions, controlling each other, and visible for the enterprise as objects in the internet cloud [Kagermann, 2013]. The term Industrie 4.0 has its equivalent form of industrial internet [Evans 2012], smart production [Vrba et al. 2011], smart factory [Zuehlke, 2010], smart manufacturing [Heilala, 2008], cloud manufacturing [Xu, 2012] and advanced manufacturing [Shipp 2012]. All these concepts indicate new industrial revolution in the sense of the end of fixed and predefined manufacturing structures, and establishing cross border business ecosystems (innovation clusters) across the whole digital value chain, i.e. production networks, dynamic, and self-coordinating established as a result of innovation policy in business ecosystems around smart cities, just like Novosibirsk and Yekaterinburg in Siberia, or Warszawa–Łódź duopolies and Silesian megapolis in Poland [Gontar et al., 2013]. Smart factories, built so far as demonstration projects located in small area, shall be modified and expanded in the close future within cross border innovation clusters, enabling combination of components from different manufacturers, and

taking context-related tasks autonomously [Klasen, 2012]. Intel proposes the automation pyramid to handle cross-border innovation cluster [Klasen, 2012], encompasses device level, control level, supervisory level, and enterprise level. This pushes researches into context-aware information systems, including context-aware workflow systems [Wieland, 2007].

In the history of industry, industrial revolutions are very rare events. The 1st industrial revolution is characterized by the invention of a steam engine and by the mechanization of manual work in the 19th century. The 2nd revolution is marked by implementation of mass production techniques at the early 20th century and the 3rd industrial one, as it is described in Germany, by electronic systems and computer technologies for automating manufacturing processes in the last few decades. The 4th industrial revolution in Germany, or the 3rd one in other industrialized countries could be described as a smart era, because the production facilities will be much smarter due to using miniaturized processors, storage units, sensors and transmitters, embedded in machines, unfinished products and materials, smart tools and software for structuring data flows. As a consequence, products and machines will communicate each other and control manufacturing processes largely by themselves (Table 1) [Kagermann, 2013].

Table 1

Artifacts of Industrial Revolutions

1st Industrial Revolution	2nd Industrial Revolution	3rd and 4th Industrial Revolution
19th century	20th century	21st century
Printing press	Radio, TV	Internet and its evolution into the cloud
Coal and Steam	Oil and Electricity	Renewable Energies
Mass education	Combustion engine	Molecular biology
Railways	Comms	Super information highways
Factories	New materials	Smart everything
	Highways	Internet of things and services
	Automobiles	Cyber physical systems
	Mass production	Fab lab
	Mass manufacturing	Innovation clusters
	Mass consumption	Digital supply chains
		Open source hardware
		Prosumer era
		Peer produced Commons
		Community based commons
		Manufacturing intelligence
		Automating manufacturing processes

THE ORGANIZATIONAL DESIGN OF CROSS-BORDER INNOVATION CLUSTERS

Platform is both business model, and organizational design dedicated to business ecosystems. Baldwin indicates the emergence of new organizational designs, i.e. open- [source] communities, and standard-setting organizations [Baldwin, 2012]. The author proposes a different organization design principle, based on distributed computing on the Internet such as Folding@home project organized by Stanford University, and design of Berkeley Open Infrastructure for Network Computing conducted by Berkeley University, which computing power is comparable to IBM and Cray supercomputers. The same principle applied to industrial grids, allow them to achieve production capacity capable of competing with the big production companies. The author calls it a cross-border innovation cluster. A cross-border innovation cluster is characterized by: dominance of innovation unit (product and process planning), modularity of manufacturing process, dynamic structure of manufacturing processes, interconnections in the sense of vertical integration and networked manufacturing system, and horizontal integration through value networks, efficient manufacturing of any scale, prosumer manufacturing, cross-border connections.

The core of a cross-border innovation cluster is Cyber-Physical Systems platform, supporting collaborative industrial business processes and the associated business networks for all aspects of smart factories and smart product life cycles, and enabling manufacturing intelligence in the sense of analysis and forecasting processes in business networks [Kagermann et al. 2013].

STANDARDIZATION IN SMART MANUFACTURING

The attempt to standardize smart manufacturing was taken in 2011 by 60 US leading industrial and academic thinkers, in the form of establishing Smart Manufacturing Leadership Coalition (SMLC) [Davis J. et al., 2012]. The first report published by SMLC and US Department of Energy in 2011 determined the main following actions to be taken: developing a community of open smart manufacturing technologies, demonstrate smart manufacturing applications, establishing collaboration with IT industry to develop standards concerning data and modeling architecture and infrastructure, integrate needs of new ventures with old corporations [smartmanufacturingcoalition.org]. SMLC with National Center for Manufacturing Sciences (NCMS) have established following demonstration projects: National Smart Manufacturing Ecosystem for industrial modeling and simulation applications and their application, an active energy management dashboard for factories, and a service system for the real-time command and control of supply chains for advanced manufacturing enterprises. Four main areas of interests have been formulated, and they are: industrial community modeling and simulations platforms for smart manufacturing, affordable industrial data collection and management systems, enterprise-wide integration including business systems, manufacturing plants and suppliers, education and job training for smart manufacturing.

SMLC provides, that 21st century smart manufacturing shall be based on network-based manufacturing intelligence and integrated performance metrics, enabling demand-driven digital supply chain, performance-oriented enterprise, minimizing energy and material usage and maximizing environmental sustainability, health and safety and economic competitiveness. Essential element of smart manufacturing will be network of cargo hubs, enabling actionable business and operations tradeoffs. In the table list of the largest cargo ports is presented, pointing the potential areas of smart manufacturing implementation.

PROSPECT PROJECTS

Regional development of territorial social and economic systems assumes reinforcing innovation capacities of regions in the form of development of various forms of stimulation of the innovative activities [Tatarkin, 2013]. Apart from SMLC's demonstration projects, in Europe there are also good examples, which could be regarded as guidance for establishing cross border innovation clusters. The first one is SmartFactoryKL in Kaiserslautern, Germany – manufacturer-independent model, demonstration and research platform, conceptualized in 2004, and developed in Kaiserslautern in 2007 by non-profit association “Technology Initiative SmartFactoryKL”, the German Research Center for Artificial Intelligence (DFKI), and 20 other industrial and research partners. The smart factory is producing and bottling colored liquid soap. The product is manufactured, filled into dispenser bottles, labeled, and delivered by consumer order. The plant has been designed as a modular one and it consists of a process manufacturing part, and a piece goods handling part [Zuehlke, 2009]. The physical components, utilizing Bluetooth, ZigBee, and RFID, automatically recognize their functions and position in the process chain and integrate for plant management. The SmartFactoryKL applied SOA architecture, using Business to Manufacturing Markup Language (B2MML) model according to ISA-95, a WSDL model, and BPEL for administration. The platform served as a research and development basis in numerous projects.

Another European example is Siemens electronic factory in Amberg, Germany designed for planning and manufacturing new Siemens Programmable Logic Controllers (PLC). It is an example of digital planning of new products, and simultaneously designing manufacturing processes. The factory is equipped with fully automated production line, enabling collect, analyze, and assess manufacturing data (on throughput, cost, and other parameters), and in consequence determine different manufacturing routes for new products. The factory uses the Siemens Simatic system, based on PLCs which dates back to the 1950s. This breakthrough technology appeared in 1979, as S5 series enabled replacing large computers in machinery and production lines managing and controlling.

Another demonstration project is StreetScooter GmbH, founded at the University of Aachen, aimed to develop and produce electric cars, and deliver mobility services (car-leasing, car-sharing, car workshop). StreetScooter GmbH better fit to the concept of cross border innovation cluster, than the previous mentioned projects because of a dynamic, broad partner and supplier network of different companies engaged in the project, and coordination and synchronization of the entire network by the manufacturing intelligence, and assessment of technological and production structure before the product is designed. From the perspective of the paper, the idea of StreetScooter GmbH is based on the assumption of the use of modular process design and development of products and processes in which many network partners operate in parallel in manufacturing pools located in cross-border innovation clusters.

The last demonstrative example is Bosh Rexroth Cyber-Physical Production System, which independently controls required maintenance and repair services of 8 machines in the Bosh Feuerbach plant from Berlin in the logistic value chain with a RFID-based Automotive Network. The Remote Condition Monitoring (RCM) triggers all processes automatically: ordering spare parts, informing technicians about further actions that have to taken.

CONCEPT OF SMART ORGANIZATION

A new model of organization refers to the industry changes in the framework of a new industry revolution. The concept of smart organization was used in the past by R. Deiser to describe a model of a learning organization [Deiser, 2009]. There are many definitions characterize the smart organization in this sense. D. Matheson and J. E. Matheson focus on the role of innovation in the company's strategy [Matheson, 1997]. The above-mentioned concepts of smart organizations overlook two issues, which are considered the main trends in the management of the medium and long term: energy management and cloud manufacturing. The model proposed by the author refers to the automatic structuring of the organization on the basis of the manufacturing intelligence.

INNOVATION CLUSTERS ASSESSMENT

In the contemporary world, the following elements of new industry already exist: the Internet, PROFInet – international standard developed by PROFIBUS International for network systems in industrial automation, simulation software, and portals for rapid engineering. The fundamental barriers that prevent the development of initiatives of this type are as follows: lack of information concerning opportunities, cost and benefits of innovation clusters and networks built on the base of this technology, lack of human resources and institutional capacities to evaluate innovation clusters projects. As a result of these barriers, innovation cluster projects are not routinely considered by industrial companies, research institutions, and regional authorities.

To overcome this obstacle, author proposes method of innovation clusters assessment, called RadicalLook, being an extension of the QuickLook method, used originally at the NASA Mid-Continent Technology Transfer Center to provide a preliminary assessment of the commercial potential of a new technology, and then refined at the University of Texas at Austin as the result of studies carried out by the Institute of Innovation, Creativity, and Community (IC2) on the commercialization of technology from government and corporate laboratories. In 2003, the University of Texas at Austin transferred the QuickLook method to the University of Łódź and to the F.I.R.E Foundation located in Warsaw. An analysis of the innovation cluster by RadicalLook method is determined by the schedule of the final report, which includes the following elements [Gontar, 2013]:

- Description of the innovation cluster – free of industry and scientific jargon, with a clear structure, easy to understand both by scientists from different scientific fields, professionals from various industries as well as non-professionals, highlighting what and how it will be produced by the innovation cluster, rather than how to bring about a radical innovation. It must include an analysis of potential scenarios for value creation in the network of the innovation cluster (analysis of the commercial potential of the technology, technology purchasing and deployment decisions, design of production and control structures, design of recycling structures), manufacturing specifications, design of integrated production (in terms of product and processes).
- Economic benefits of the innovation cluster. Potential markets for products manufactured within the innovative cluster. It requires the staging of interviews with coordinators of the innovation cluster and independent market research. The results of these studies encompass the following items: the main market for the product in terms of composition, structure, size, analysis of the supply and demand balance, the market research of buyers and end users, and potential benefits of the new products,

- Rate of interest in the market, paying particular attention to the following points: preferred pricing models, key purchase factors, the usual number of orders with a common order frequency, predicted properties of the product, delivery expectations, certification expectations, and expectations for after-sales support.
- The state of development of the innovation cluster, i.e. scenario planning, in terms of value adding, and definition of integrated product development.
- The legal status of the innovation cluster (for network connections in the cluster), and in the context of cross-border initiative assessing protecting corporate data, issues of liability and responsibility, data protection standards, and practical solution for handling personal data, trade restrictions in each participant country (Kagermann, 2013).
- Competitive clusters and their market competitors. Barriers to entry. Potential opportunities.
- Recommendations for quantification of the innovation cluster (a decision on the yes/no), and an outline of the steps needed to start production and carry out legal procedures.

The author referred investigations concerning innovation cluster called Green Cars [www.gc.greenpl.org], created in Warsaw in 2007 for the emerging market of electric cars, as an attempt to overcome the primary barriers facing the dissemination of the electric car, namely the lack of public interest in these types of cars because of their high cost, short range and lack of charging stations. The introduction of this market is intended to transform the way in which the management of electricity is performed in enterprises. In Poland, the main obstacle to the development of this industry is the lack of a native automotive industry. This has resulted in the production of electric cars as a niche activity, carried out by manufacturers in other industries, i.e.: Melex, separated from the holding company WSK / PZL Mielec, producing electric golf carts, and similar vehicles including passenger, baggage and special, and ELIPSA Electric Vehicle Plant, separated from ZNTK Radom, producing electric passenger cars Elipsa Verstyle and trucks Elipsa.

The electric car industry is dominated by major automotive companies (Renault-Nissan/Renault Zoe and Nissan Leaf, Mitsubishi/i-MiEV, and Chevrolet/Volt). In the absence of Polish automotive companies which would be able to create an electric car project, there existed the potential to build networks between cities interested in creating clusters of new industries. The model can be derived from the idea of distributed computing on the Internet. Cluster allows for (i) the use of market mechanisms to build a socially responsible innovation, trying to solve the following world's biggest social problems: non-renewable resources depletion, CO2 emissions from motor vehicles, noise and vibration caused by the development of motorization, (ii) define business rules enabling the cooperation of enterprises and institutions operating in different areas, (iii) support for the innovation cluster by the operations of public institutions: electrification of transport (electric cars, electric buses).

The main recipient of this technology would be large Polish companies from the energy sector interested in building the domestic production of electric cars as part of a national smart grid. The electric car will be an integral part of the smart grid and the dominant energy storage receiver. And it can be used at any time, without changing the level of power generation in power plants. Energy companies may be interested in both building and testing electric cars in order to collect the data necessary to estimate the future demand for electricity when there is a wide use of electric cars. Due to the small driving range and long charging process, electric cars are promoted as city cars. Another stakeholder interested in this technology could be Polish smart cities interested in the development of electric transport in tourist areas (electric vehicles for municipalities, electric bus lines, and electric vehicles for tourists).

The Embronic electric car industry includes the production of Melex and Elipsa vehicles, and Romet which manufactures electric cars for the Chinese company Yogomo. Note that the electric car market has two principle operational aspects. Firstly there exists the pos-

sibility of building a large network of charging points. On the other hand, in the smart grid, every enterprise and every institution will be a micro-energy producer and “domestic fuel station.” It will be necessary therefore to build electric cars for the micro-energy producers.

Cluster Green Cars differ from the existing automotive cluster in Poland in several important points in that they are: an innovative cluster where the main operational entity conducts R & D, an area of corporate social responsibility, and as such, can involve a number of public institutions interested in achieving tangible social benefits arising from sustainable development and public investment (Gontar et al., 2013). Strategy of the Green Stream Project links to social responsibility primarily in terms of the implementation of smart grid. Smart grid can be seen as a way to achieve energy independence, a remedy for global warming and guarantee the security of the power system and the model of society drastically restricting the use of coal (low carbon society). Smart grid creates an appropriate infrastructure, to accomplish this type of benefit. Energy savings, reduced costs, increased reliability and transparency (equitableness) is the result of the use of ICT systems in the power system.

CONCLUSIONS

There is a lot of change coming in economic infrastructure, including smart manufacturing, hardware open source, peer-produced commons, leading to disruptive changes in institutional structures, and a massive retraining of prosumers, and enabling creation of interconnected communities on the base of cross innovation idea.

Analyzing the concepts of 3rd industrial revolution and taking into account case studies of demonstrative projects that having been appeared in recent years, it can be concluded that local governments will be forced in the close future to recognize the opportunity in the development of cross-border innovation clusters. The main and common artifact that appears in these concepts and case studies is the development of manufacturing pools, which provides support to the smart factories.

Following Delloite audit report concerning innovativeness of Polish regions, it is important to notice that the most innovative region in Poland (Mazowieckie) is just average compared to Europe [Delloite, 2013], but regions as a whole take into account the experiences and good practices, and economic trends, responding to the changing economic environment, social and political. Selected regions defined the system for support key clusters in the region, built a system of technology transfer, gathered information on available sources of funding and created a coordinated network of business environment institutions. Most regions start to work at the regional level (between institutions) and cooperation within the framework of national and international projects. All these facts indicate that it is a good time to initiate cross-border innovation clusters projects.

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INSTITUTIONAL MILIEU AND THE EMERGENCE OF LOCAL PRODUCTION SYSTEMS IN POLAND – DETERMINANTS AND SPECIFICITY

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Local production systems emerge in locations which offer favourable conditions and properties in their environment. First and foremost formal and informal institutions are decisive for the development and competitiveness of the LPS. The paper aims to identify fundamental institutional conditions that determine the development of the LPS in Poland. Institutional environment includes, in this case, the properties of local entrepreneurial milieus, mainly social capital, R&D sector, public institutions (in particular public authorities), and non-governmental organisations (NGOs).

SPECIFICITY OF LOCAL PRODUCTION SYSTEMS IN POLAND – ROLE OF INSTITUTIONS IN ENHANCING LPS COMPETITIVENESS

As a result of restructuring, Polish economy has got actively involved into changes of both global and local nature. More and more clearly and more and more often we can observe emerging local production systems (LPS), which foster the competitiveness of local economies; some of them have already acquired a substantial international competitive potential. LPS in Poland, also commonly referred to as clusters, represent various potential and characteristics. Numerous studies demonstrate that, similarly to many other countries, their development dynamics is strongly dependent upon the organization of local entrepreneurial milieus, institutional maturity, flexibility and efficiency of local actors to operate on a dynamic knowledge-based market. Hence the objective of the paper is to identify the determinants and specificity of the emergence of LPS in Poland. In particular, we wish to present the outcomes and transformation directions of the R&D sector in Poland aimed at its greater openness and compatibility with the current needs of the economy, the development and engagement of the non-governmental sector in supporting the establishing of LPS, and the characteristics of the importance and involvement of public authorities in the support of LPS.

The efficiency of market economy in Poland depends on the efficiency of the market and on market conditions. We may note that, in accordance with theoretical considerations, Polish economy evolves towards increasing decentralization and local embeddedness of development processes. Local and regional processes significantly impact the forms and quality of market

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organisation, which translate into the competitiveness of the economy. The view features prominently in the theory of economics, especially in concepts relating to the transaction cost theory, institutional concepts, endogenous growth, and, first of all, to regional economics currently dominated by territorial approach to the explaining of social and economic development processes. A territory, as explained by A. Jewtuchowicz, is a form of organisation and social interactions rather than a simple warehouse of resources; it is a key element linking development in short and medium term.¹

M. Storper argues that a territory is a locus of untraded interdependencies – conventions, which effectively facilitate the organisation of social and economic life.² According to D. North, interactions between institutions, economic organisations and entrepreneurs give a new shape and provide direction, in which economy evolves.³ We should stress here, that representatives of new institutional economics tend to interpret institutions as rules of the game, which restrict operations of individuals. “Institutions are restrictions conceived by people to structure human relations. They consist of, firstly, formal limitations, e.g., legal rules and, secondly, of informal limitations, i.e., behavioural norms, conventions, shared customs and codes of ethics.”⁴ Institutions create operating conditions for entrepreneurial milieus, also referred to as innovative milieus. D. Maillat, O. Crevoisier and B. Lecoq define entrepreneurial milieu as a localised collection, shaped and integrated within a network, equipped with material (e.g. infrastructure, enterprises) and immaterial (e.g. skills and knowledge) resources, disposed and managed by many local actors (firms, public and private institutions).⁵

Entrepreneurial milieus, which started to emerge and take an institutional shape in the last decade in Poland, reduce transaction cost arising from market imperfections, limited access to information and bounded rationality of human behaviour. Concentration of economic activities and factors within a specified area helps to select effective forms of company organisation to minimise transaction cost. That leads to agglomeration economies, which, under Polish circumstances, may appear in both, strongly and less strongly urbanised areas, in highly and little innovative industries.

In economic terms, agglomeration economies are the most fundamental way of explaining why economic activities tend to concentrate in space. Economic rationale behind forming big groups of population and businesses surely lies in higher productivity and increasing returns, which they ensure to their participants.⁶ The concept of agglomeration economies clearly evolved towards institutional trends in economic analyses, mainly the economics of proximity.⁷

Undoubtedly, the dynamics and present social and economic development of regions in Poland are determined by the competitiveness of economic entities based in these regions and by the quality of organisation of entrepreneurial milieus. The power and territorial scope of agglomeration economies depend on the level of social capital in the milieu in question, the involvement of the social sector in its fostering, confidence building, preserving and care for traditions, culture, and information transmission. The effects also depend on the potential and openness of R&D sector to cooperation and on the openness and capabilities of the local

¹ Jewtuchowicz A. *Terytorium i współczesne dylematy jego rozwoju*, Publishing House of the University of Lodz, Lodz 2005, p. 60.

² Storper M. *The Regional World: Territorial Development in a Global Economy*, The Guilford Press, New York 1997, pp. 5–28.

³ Morawski W. *Socjologia ekonomiczna*, PWN, Warsaw 2001, pp. 58–59.

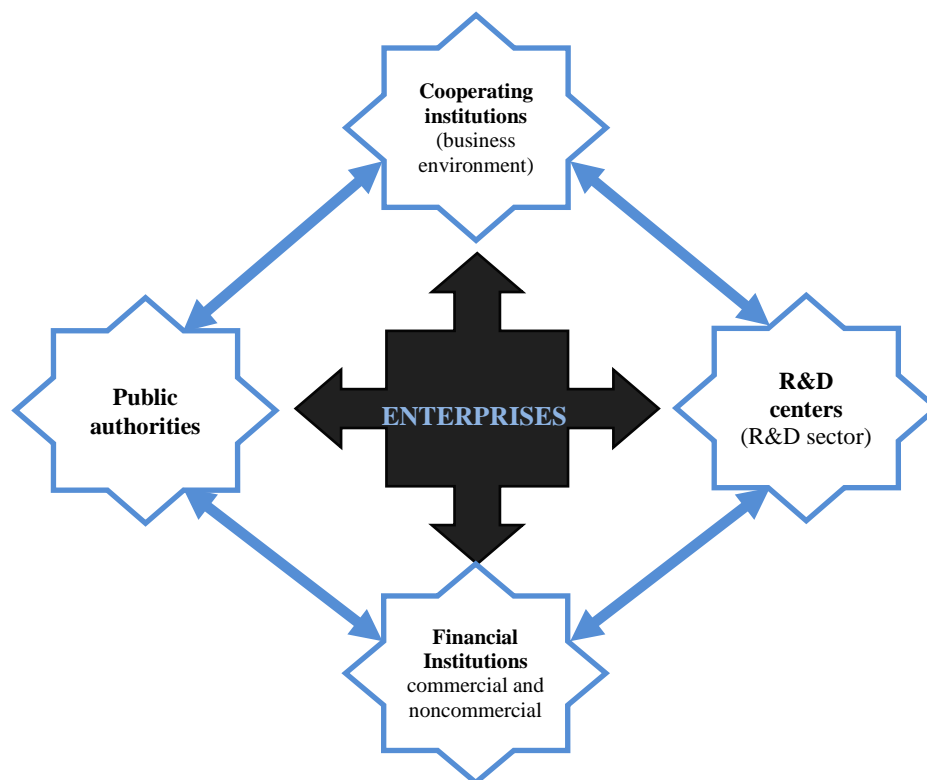
⁴ Grosse T.G. Przegląd koncepcji teoretycznych rozwoju regionalnego, *Studia Regionalne i Lokalne* No. 1 (8) 2002, pp. 40–41.

⁵ Hsaini A. Le dépassement des economies d'agglomeration comme seules sources explicatives de l'efficacite des systemes de production territorializes, *Revue d'Economie Regionale et Urbaine* n° 2 2000, p. 224.

⁶ Lucas R. Making a Miracle. “*Econometrica*” no. 61, 1993, pp. 251–272, cited by M. P. Feldman, *Location and Innovation: The New Economic Geography of Innovation, Spillover, and Agglomeration* [in:] Clark G.L., Feldman M.P., Gertler M.S. (eds.), *Oxford Handbook of Economic Geography*, Oxford University Press, 2000, p. 384.

⁷ Torre A., Gilly J.-P. (edited by M.W. Danson), *Debates and Surveys: On the Analytical Dimension of Proximity Dynamics*, “*Regional Studies*”, vol. 34.2, 2000, pp. 173–175.

authorities to coordinate, stimulate and strengthen internal development also by supporting internationalisation (inclusion of local actors into global processes) of the local economy. The essence of agglomeration economies in increasingly complex and innovation-oriented economic systems depends on mutual trust, the sense of cohesion and belonging, opening up to cooperation and synergy as well as individual and team input into good reputation of a given area. All these contribute to the strengthening of the ability of a given milieu to generate innovation and opening to external innovative impulses.¹ This is how local production systems emerge, able to compete not only regionally or nationally but often globally. These systems, also in Poland, are often defined as “local production systems” which are groupings of companies from related industries, which cooperate with one another, and state institutions, industrial organisations, R&D centres, universities, and vocational schools concentrated in the same region². These businesses maintain relations among themselves and with their socio-cultural environment. These are not only commercial relations but also exchange of information and creating positive external effects for a collection of companies³. M. Storper adds on that it is a diversified system of regional institutions, norms, and practices leading to improved innovativeness of participating entities⁴. Universities and other R&D institutions as well as those dealing with support to entrepreneurship and technology transfer are vital for improved innovation. All these entities should provide proper institutional environment for companies within the system, conducive to its further development (Figure 1).



Source: Solvell O., Lidqvist G., Ketles Chr. The Cluster Initiative Greenbook, Stockholm 2003, p. 18.

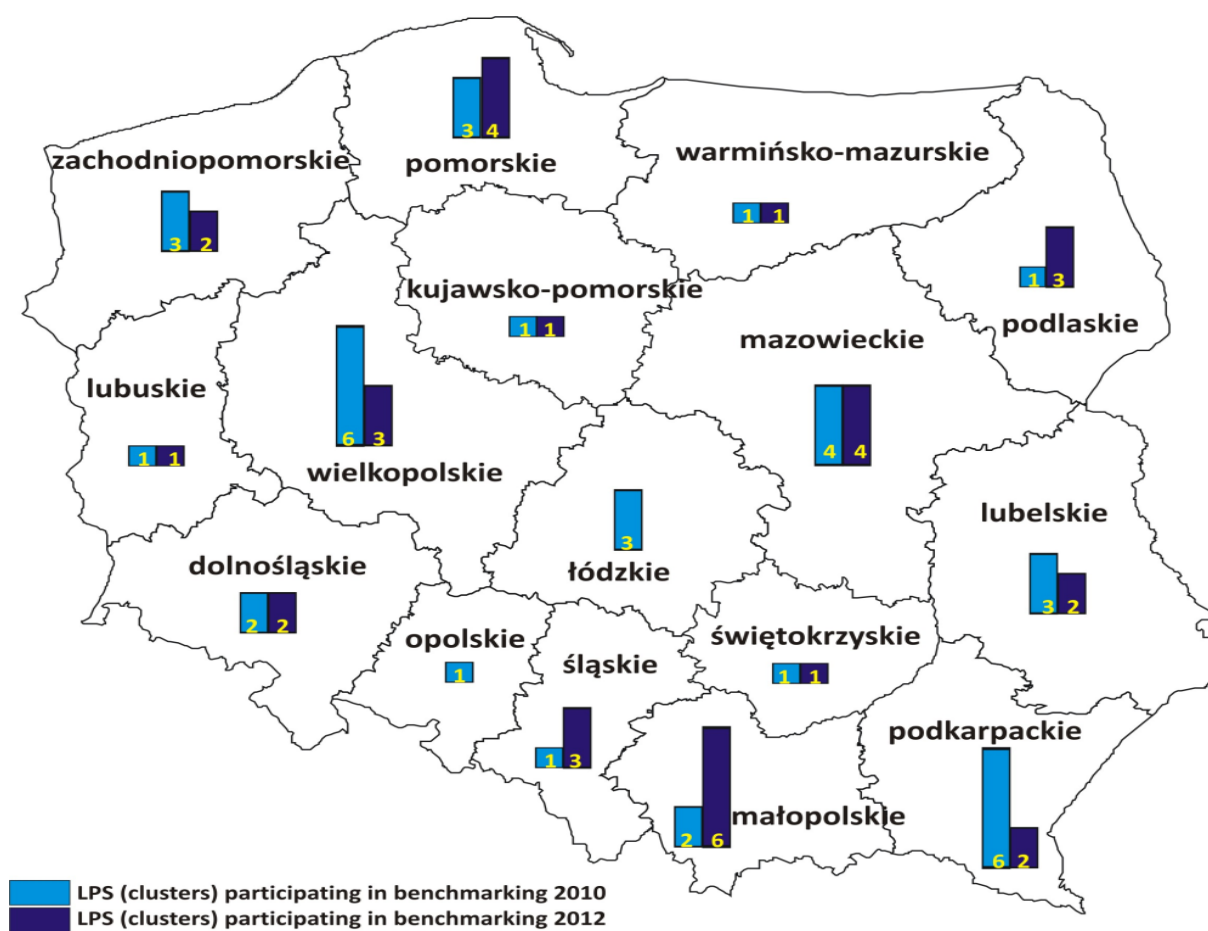
Fig. 1. Main actors in LPS

¹ Sokołowicz M. Basic theories concerning LPS: The concept of agglomeration economies and its evolution from the point of view of local production systems' functioning, non-published materials, Lodz 2013, cited from: Gruchman, B., *Od aglomeracji do klastrów przemysłowych i środowisk innowacyjnych*; [in:] M. Klamut (ed.), *Polityka ekonomiczna. Współczesne wyzwania*, Publishing House PWN, Warsaw 2007, pp. 203–209

² Przygodzki Z. State of play and sectoral differentiation of clusters in Visegrad Group countries and in Germany in the context of increasing competitiveness, *Comparative Economic Research*, Volume 15, Number 1/2012, pp. 61-81; B. Szymoniuk, S. Walukiewicz, *Lokalne systemy produkcyjne jako stymulatory innowacyjności*, in: *Wspólna Europa – Przedsiębiorstwo wobec globalizacji*, SGH-PWE, Warsaw 2001, pp. 445–446.

³ Hsaini A. Le dépassement des économies d'agglomération comme seules sources explicatives de l'efficacité des systèmes de production territorialisés, *Revue d'Economie Regionale et Urbaine*, N 2, 2000, p. 219.

⁴ Storper M. *The regional world. The territorial development in global economy*, Guilford Press 1997, p. 17.



Source: own calculations based on data from two cluster benchmarking studies in Poland [in:] A. Nowakowska, Z. Przygodzki, M. Sokołowicz, Typology and specificity of Polish local production systems – based on the results of the benchmarking in 2010 and 2012, non published material, Lodz 2013.

Fig. 2. Number of active local production systems and new cluster initiatives

According to A. Hsaini¹, the foundations of the economics of a localised production system, i.e., the source of its productivity, consist mainly in agglomeration external economies, in other words, in continuous assessment of space, benefits that distinguish between costs of production and trade of internal and external markets, made by companies. Agglomeration economies are defined as benefits of transaction that come when a business is located in a big enough industrial agglomeration. Agglomeration economies result from strong links among local companies. They also increase the importance of the division of labour leading to greater specialisation, implementation of new technologies and improved productivity of the local system: reduced unit costs of production and/or increased output, potential expansion of market at national and international levels at reduced costs of market entry. Finally, as we have already mentioned, agglomeration economies relate also to organised local labour market with high mobility of skills and competence among businesses and to labour relations based on individuality and knowing one another linked to the community, to which they belong.

¹ Hsaini A. Le dépassement des économies d'agglomération comme seules sources explicatives de l'efficacité des systèmes de production territorialisés, *Revue d'Economie Regionale et Urbaine*, N°2, 2000, pp. 220–221.

Using Polish studies on cluster benchmarking¹, which identify the LPS and their development potential, we can estimate their population. Based on the so far studies and accumulated knowledge we may conclude, however, that at the turn of the first and second decades of the 21st century in Poland there were ca. 50 local production systems and ca. 70 the so called cluster initiatives, i.e., projects at very early stages, with respect to which we cannot unequivocally anticipate their future shape (see Figure 2).²

SOCIAL CAPITAL IN ENTERPRISES – READINESS TO FORM PARTNERSHIPS

Modern economy perceives an enterprise as a sort of a network structure, an entity building its success on specific relations with other organisations that strive to achieve a common goal. Partnership and the development of various types of cooperation are interpreted as a new trend in strategic development of companies. A trend based on the conviction that new knowledge, values and innovation more and more often emerge (and exert an impact) not only in individual companies but in networks of companies. Hence the consideration of ties between economic entities has gained in importance in the evaluation of competitive behaviour of firms. In Poland such cooperation happens more and more often as in the last decade we could observe increased trust in business partnerships – ca. 34% (2010) of Poles are of the opinion that trust in your business partners usually pays off. The score increased by 10 percentage points within the last 10 years.³ In practice, the confirmation can be found, e.g., in higher propensity and efficacy to organise local production systems, in particular clusters, in Poland. Social capital is one among fundamental elements that impact the operations of such systems. Its key components, such as trust, norms and obligations determine the way and scope of cooperation within local production systems. Developing trust between partners, building up social capital, releasing active attitudes and obligations are the most important elements of cluster initiatives.⁴

Though the term social capital was first used back in 1916, it became a part of reflections over social and economic development as late as in the 1980s and 1990s mainly thanks to the writings of Pierre Bourdieu and James Coleman. The list of names closely related and associated with the subject also includes Francis Fukuyama and Robert Putnam, considered the main promoter of the success of the term. Although each of the above mentioned researchers highlighted different aspect of the capital in question⁵, all of the approaches include certain key components of its definitions. These are: trust, social networks, norms and obligations.⁶ Definition proposed by T. Kaźmierczak can be treated as a summary of classical approaches to social capital. According to him, social capital is “an individual resource derived

¹Benchmarking is the most frequently used method to survey clusters, both in Poland and in Europe. A research „Cluster Benchmarking in Poland” was conducted twice in Poland, in 2010 and in 2012, providing a good overview of the development and operations of local production systems.

²Nowakowska A., Przygodzki Z., Sokołowicz M.E., Mapping clusters in Poland. A comprehensive methodological approach, [in:] Theoretical and practical aspects of urban and regional development, ed. T. Markowski, M. Turała, Polish Academy of Sciences Committee for Spatial, Economy and Regional Planning, Warsaw 2009, pp. 265–280

³Zaufanie społeczne, CBOS Komunikat z Badań [Social trust. Communication form Public Opinion Survey], Warsaw, March 2010 BS/29/2010, p. 8.

⁴Kulas Ł., Koszarek M. Klaster to coś więcej niż potrójna helisa – mobilizacja i budowa kapitału społecznego, [in:] Inicjatywy klastrowe: skuteczne działanie i strategiczny rozwój, M. Koszarek (ed.), Polish Agency for Enterprise Development, Warsaw 2011, p. 35.

⁵For more on classical approaches to social capital see, e.g.: P. Bourdieu, J.D.L. Wacquant, Zaproszenie do socjologii refleksyjnej, Oficyna Naukowa, Warsaw 2001, p. 105; J.S. Coleman, Foundations of Social Theory, MA: The Belknap Press, Cambridge 1990, p. 302; F. Fukuyama, Trust: The Social Virtues and the Creation of Prosperity. Polish edition by PWN Warsaw 1997; R.D. Putnam, Making Democracy Work. Civic Traditions in Modern Italy, Polish edition by Instytut Wydawniczy „Znak”, Stefan Batory Foundation, Krakow-Warsaw 1995

⁶Trutkowski C., Mandes S. Kapitał społeczny w małych miastach, Wyd. Scholar, Warsaw 2005, p. 65.

from the network of ties among them, in which symbolic (information, knowledge, values, ideas, etc.), material (goods, money), and emotional goods (approval, respect, sympathy, etc.) circulate". Social capital, by conditioning reciprocity and trust, affects the readiness to cooperate and the potential of effective cooperation. It is a specific feature of social capital that allows those who manage it accomplish goals, which otherwise would not be achieved at all or would entail higher costs. Social capital understood as above is not a public good, it is a "club" good available only to individuals included in the network.¹ Poles tend to trust people the closest to them, especially their next of kin but also acquaintances and further relatives. Openness to strangers met in various circumstances, including business partners, is much more limited – trust in them is declared by ca. one third of Poles.²

Making reference to social capital in the context of modern enterprises is a relatively new approach also in Polish social and economic reality. It is about changes in internal organization of enterprises and ways, in which they operate and cooperate with the external world. We mean here both, internal social capital existing among the employees of a given enterprise and the general culture of cooperation, collaboration and mutual trust in the milieu, in which a company operates. In both cases stronger or weaker ties are being developed between entities involved and they impact operations and organisation of an enterprise.³

In accordance with the position of the OECD, social capital may directly impact clusters in two ways: by supporting and providing innovation and by reducing transaction cost. Innovativeness in clusters to a large extent depends on the degree of collaboration, on the network which determines learning process and information flow, which, in turn, depend on social capital. Trust and involvement into a network of ties eliminate barriers to the creation and dissemination of knowledge, i.e. lack of access (or difficult access) to specialist knowledge, long time of seeking information, lack of tendency to share knowledge (balanced by trust and norms of reciprocity). In the second case, also as a result of direct contacts and relations, social capital reduces bureaucracy or minimises the cost of exchange of information.⁴ As noticed by F. Fukuyama "social capital significantly impacts the nature of industrial economy that a given society is able to generate. If collaborators to the same undertaking trust one another because they follow the same norms of the code of ethics, business becomes less costly. The community is more willing to create organisational innovations as trust contributes to the development of all sorts of ties".⁵

Although civic engagement of the Polish society is not very intense yet, we must stress that Poles have an increasingly growing feeling that they can have real impact in their local communities (66% of Poles declare that by acting together they may effectively change their local environment). Besides, the studies show that 46% of Poles are ready to deliver voluntary work, without any financial compensation, for the benefit of their locality, village, and district or for the people in need. Even more respondents, 81%, agree that by acting together we may achieve more than when acting individually. Almost two thirds of Poles (65%) are of the opinion that by acting together they may solve the problems of the community, in which they live or help others. These data provide very optimistic grounds for the future. Unfortunately, for the

¹ Kaźmierczak T. Kapitał społeczny a rozwój społeczno-ekonomiczny – przegląd podejść, [in:] Kapitał społeczny. Ekonomia społeczna, T. Kaźmierczak, M. Rymśa (eds.), Institute of Public Affairs, Warsaw 2007, p. 47.

² Strategia Rozwoju Kapitału Społecznego, Załącznik Diagnoza, [Strategy of Social Capital Development, Annex Diagnosis] Warsaw 2011, p. 138.

³ Whether weaker or stronger ties are more valuable should be assessed against concrete goals of a company. Various ties facilitate access to different types and quality of knowledge and imply various inputs for the ties to be established and maintained. For more see: M.S. Granovetter, The Strength of Weak Ties, American Journal of Sociology, Volume 78, Issue 6 (May 1973), 2001, pp. 1360–1380; W. Doryń, Wpływ kapitału społecznego na internacjonalizację przedsiębiorstw, Gospodarka Narodowa no. 11–12/2010, pp. 112–113.

⁴ Ionescu D. Social Capital: A Key Ingredient for Clusters in Post-Communist Societies, [in:] Business clusters Programming Enterprise in Central and Eastern Europe, J. Möhring (ed.), OECD Publishing, 2005, Paris, pp. 35–36.

⁵ Fukuyama F. Trust. The Social Virtues and the Creation of Prosperity, Polish edition by PWN, Warsaw-Wrocław 1997, p. 40.

time being, we must confront the picture with the real state of play. Despite the above declared views, only 20% of population engage in activities for the common good. The fact that views on civic engagement are not reflected in action is mainly caused by the lack of trust in being able to effectively impact the course of business in the country and by generally low level of trust in public institutions¹. These elements of institutional system constitute challenges in fostering the support for local production systems.

TRANSFORMATION OF SCIENCE – TOWARDS DIRECT SUPPORT OF THE ECONOMY

Abundant academic tradition becomes re-assessed in the search for effective mechanisms and models of university – industry collaboration, broader inclusion into the economy and building up competitive advantage. Debates that have been going on for almost two decades in the European Union have led to the conclusion that within the present, traditional model of a university, adjustment mechanisms to the changing environment and, first of all, commercialization of the results of research and university – industry collaboration are too little disseminated and not effective. The causes of the problem should be attributed not only to too low expenditures on science and education at university level, but also to systemic solutions that often become major barriers to university and business collaboration. The absence of the spirit of cooperation between universities and other entities may also be due to the lack of stimuli or insufficient incentives to interact with business. Often excessive, narrow specialization in individual academic disciplines prevents from developing business attitudes necessary to create innovative economy. The conclusion is that we need to develop and disseminate a new operating model for universities based on a vast collaboration, which conditions competitive advantage of a given environment. We mean the need to open up universities and the world of science and to transform them into the driving force of economic growth. By that, in response to the alleged detachment of universities from the requirements of modern economy, the world of science in Poland could get involved more actively into the building of innovative capacities of the economy.

Looking at how the idea and functions of the universities evolved, we can distinguish three main operating models: Medieval universities, the so called Humboldt universities and Third Generation universities². The evolution took several ages and was forced out by deep social and economic changes. In the meantime, the objectives and the operating scope of universities got re-defined and their organizational mode changed. When trying to identify the major reasons behind the transition to the third model of universities, one must pay special attention to internationalisation of R&D activities, the development of ICT, which have opened up new possibilities of information exchange and on-line education that have substantially influenced methods and forms of scientific collaboration, the emergence of knowledge-based services, increased interdisciplinarity and capital-intensity of research.³ The evolution, which is also going on in Poland, transforms universities into entrepreneurial, creative and innovative entities. The general idea of a third generation university is based on an effective combination of science and business and other institutions to set up networks, which would enable joint R&D works that

¹ Strategia Rozwoju Kapitału Społecznego, Załącznik Diagnoza [Social Capital Development Strategy. Annex Diagnosis], Warsaw 2011, p. 138.

² For more see: J. G. Wisseman, Uniwersytet Trzeciej Generacji. Uczelnia XXI wieku, ZANTE Publishing House, Wrocław 2009.

³ A. Nowakowska, Rola uczelni wyższych w regionalnym systemie innowacji [Role of Universities in Regional System of Innovations], in Polish [in:] Materials of the „Experience Exchange Partner Network within the Operational Programme Human Capital supporting Regional Strategies of Innovations INTREGRISET”, Marshal Office in Lodz, Department for Operational Programme Human Capital, December 2011, p. 151.

could be commercialised at a later stage¹. These postulates call for reorientation and revaluation of solutions applied by universities when it comes to the management, educational activities and their attitude to commercialisation. Among others, managerial style needs to be introduced at universities, so that they are able to face challenges connected with shaping entrepreneurial attitudes in students or to support the establishing of academic spin-off, spin-out businesses. The new approach to science in Poland considers commercialisation of the results of research at least equally important as teaching or traditional R&D activities. While maintaining the highest quality of teaching, universities are supposed to be transformed into international enterprise and technology transfer centres that offer direct support to the economy². Thus the academic canon of the 21st century is a university capable of delivering three missions: the first two “traditional” – teaching and research, and the so called third mission – enterprise and innovativeness³. From the point of view of considerations included in the paper, academic involvement in business education and enterprise, together with practical support in establishing start-ups, leads to the emergence of networks of university-based companies, potential members of modern and competitive clusters. The proximity of the sources of knowledge, advanced and specialist infrastructure and academic staff create a friendly environment for highly innovative clusters.

However, as noted by A. Nowakowska, when speaking of the transformation of the science sector and of the role of universities in economic growth in Poland, two different, often contradictory, ideas are proposed of how to link universities with the private sector. The first is more network-based and assumes joint funding and conducting of research programmes, meaning closer ties between universities and pro-innovative operations of companies. The approach highlights the importance and need of building relations and collaboration ties between universities and businesses although the operations of the two structures follow their individual, separate logic. The second concept is based on better use of ideas and research conducted at universities and focuses on the establishing of spin-off, spin-out businesses run by academics or by the university, developing commercial consulting services, professional management of IPRs, and establishing specialist institutions granting licences for technologies. In this case, an attempt is made to transform universities into units actively involved in economic processes, which deliver innovative products and services.⁴ No unambiguous answer can be given as to which of the above two solutions is more effective in terms of their impact upon economic growth and the operations of universities. The choice is based on the analysis of specific circumstances in which individual units operate.

In conclusion we may state, that terms like knowledge, creativity, innovations, enterprise, and technology transfer have unquestionably gained in importance in both economic and political discourse. Their context has provided grounds for specific expectations vis-a-vis research institutions or, more precisely, vis-a-vis mechanisms, which help include them into the economy and establish multi-functional relations with business. Stress is put on the need to deepen the integration of the so called triangle of knowledge-science, education and innovation. Science sector in Poland is supposed to become not only the driving force of the knowledge-based

¹ F. Nowacki, Aktywność przedsiębiorcza uniwersytetu trzeciej generacji – uniwersytet czy przedsiębiorstwo?, [in:] *Uniwersytet trzeciej generacji. Stan i perspektywy rozwoju*, D. Burawski (ed.), European Centre for Enterprise Promotion, Poznań 2013, p. 31.

² K.B. Matusiak, Budowa powiązań nauki z biznesem w gospodarce opartej na wiedzy. Rola i miejsce uniwersytetu w procesach innowacyjnych, SGH, Warsaw 2010, pp. 73–77.

³ K. Dyrkowski, M. Popek, Uwagi o przedsiębiorczości uczelni w modelu uniwersytetu III generacji, [in:] *Uniwersytet trzeciej generacji. Stan i perspektywy rozwoju*, D. Burawski (ed.), European Centre for Enterprise Promotion, Poznań 2013, p. 62.

⁴ A. Nowakowska, Rola uczelni wyższych w regionalnym systemie innowacji, [Role of Universities in Regional System of Innovations], in Polish [in:] *Materials of the „Experience Exchange Partner Network within the Operational Programme Human Capital supporting Regional Strategies of Innovations INTREGISNET”*, Marshal Office in Łódź, Department for Operational Programme Human Capital, December 2011, p. 152.

economy of collaboration networks but also its active participant.¹ The shift towards market-oriented education requires, besides new systemic solutions, an equally important change of the mindset of Poles and overcoming stereotypical thinking and acting so deeply rooted in the academic community.

PUBLIC AUTHORITY'S INVOLVEMENT IN SUPPORTING THE COMPETITIVENESS OF THE LPS

Public authorities (at local and regional levels) are dominant actors in building and shaping the social and political environment, which provides foundations for mechanisms that condition appropriate course of innovation. Properly conducted policy, creative and proactive, helps diverge from traditional administering based on formal and legal procedures to provide conditions for²:

- firstly, disseminating development processes,
- secondly, including partners who until now were only passive recipients of changes.

The capabilities of public authorities to create pro-development conditions and to eliminate barriers derive from their decision-making competences laid down by law. LPS competitiveness may thus be supported within the remit and responsibilities of public authorities. Public authorities are directly charged with the responsibility to enhance the competitiveness of the economy and to maintain social and economic cohesion by the Act on Principles of Conducting Development Policy.³

Special importance is attached to supporting entrepreneurship, which obliges public authorities to undertake actions aimed at creating favourable conditions for start-ups, especially for micro-enterprises and SMEs.⁴

Many provisions in acts relating to local self-government (commune self-government, county self-government and regional (voivodeship) self-government), oblige local and regional self-government units to optimally meet the needs of the local community and to create appropriate conditions for entrepreneurs to develop their businesses and to innovate. As a result, they are responsible for all matters pertaining to the development of high quality technical and social infrastructure, cooperation with NGOs and with economic entities.

In this context, competences of public authorities in preventing unemployment and mobilisation of the local labour market are also important. Public authorities are responsible for job placement services, vocational counselling, vocational training, recruiting employees, initiating and funding various forms of vocational activity (e.g., training courses, subsidised employment), projects promoting employment financed from domestic (Labour Fund) or EU (European Social Fund) resources, developing and coordinating labour market policy and human development and tasks connected with free movement of workers between Member States.⁵

In order to create the environment favouring the development of local production systems, public authorities must pursue an adequate policy to promote cooperation of all entities within their social and economic territory. To work out an effective mechanism of improving innova-

¹ K.B. Matusiak, *Budowa powiązań nauki z biznesem w gospodarce opartej na wiedzy. Rola i miejsce uniwersytetu w procesach innowacyjnych*, SGH, Warsaw 2010, p. 7.

² Rutkowski J., Stawasz D. (eds.) *Zarządzanie rozwojem lokalnym*, FWZ Publishing House, Białystok 2005, p. 11.

³ (Official Journal of the Polish Government (Dz. U.) of 2006, No. 227, item 1658 with further amendments, Art. 2).

⁴ Art. 8 of the Act of 2 July 2004 on Freedom of Economic Activity (Dz. U. of 2004, No. 173, item 1807 with further amendments).

⁵ Act of 20 April 2004 on Promotion of Employment and Labour Market Institutions (Dz. U. of 2004, No. 99, item 1001 with further amendments).

tiveness and, by the same token, to support local production systems, local authorities may focus their initiatives on¹:

- projecting and mobilising growth through planning, developing and delivering various public policies (e.g., tax policy, rent policy);
- fund raising and combining public and private financial resources to implement public utility projects; private and public partnership seems a perfect candidate to become the driving force of innovation;²
- coordinating operations of entities operating in a given area to ensure economic and social benefits;
- initiating economic and social projects within the framework of strategic cooperation;
- initiating and developing cooperation within partnership networks of public authorities, R&D units, companies, NGOs and enterprise supporting units;
- supporting education and university – industry collaboration, e.g., through the support of research in high-tech companies or in other sectors;
- improving education of its inhabitants;
- mobilising active citizenship attitude and enterprise behavior;
- conducting promotion and information activities aimed at creating positive image of a given area (commune, region) and promoting the idea of LPS;
- informing about current political trends when it comes to development priorities, identifying sources of funding, etc.

Effective and helpful public authorities together with actively involved community and its institutions importantly complement the enhancement of competitiveness and innovativeness of the LPS. That entails redefinition of operating mechanisms and collaboration between government units and civic society. Improving state performance, in the context in question, is connected with full deregulation and elimination of excessive legal and institutional burden that hampers free enterprise. The above entails the need to do away with the *welfare state* and shift towards the *workfare state* and the *welfare society*. Besides, the idea and principles of *open government* must be implemented³.

In summary, the involvement of public authorities in supporting the competitiveness of the LPS is a right and very good solution. Nevertheless, the need to develop such systems may be not understood properly by public authorities as they may lack knowledge on their importance and role. Hence the promotion of knowledge on the LPS and their attributes is crucial. Delivering real support to the LPS requires also a lot of patience from public authorities, openness and a new look at stimulating enterprise in a broad sense.

¹ See also: Słomińska B. Gmina w procesach stymulowania przedsiębiorczości, "Samorząd Terytorialny", 2007, No. 3, p. 20.; Matejun M., Regionalne instrumenty wspierania rozwoju małych i średnich przedsiębiorstw, [in:] Adamik A. (ed.), Współpraca małych i średnich przedsiębiorstw w regionie. Budowanie konkurencyjności firm I regionu, Wydawnictwo Difin, Warsaw 2012, p. 88.

² Act of 2008 on Public and Private Partnership introduced numerous simplifications that offer additional flexibility in implementing such projects. However, the amended law still does not motivate enough the private and public party to undertake common projects under the PPP arrangement. The approach to innovative projects going beyond traditional interpretation of PPP projects is conservative.

³ Polska 2030. Trzecia fala nowoczesności. Długookresowa strategia rozwoju kraju [Poland 2030. Third wave of modernity. Long-term national development strategy] in Polish, Ministry of Administration and Digitization, Warsaw 2013, pp. 59–60.

ROLE OF NGOS IN CREATING LOCAL PRODUCTION SYSTEMS

Besides public authorities, R&D sector, and bottom-up initiatives, NGOs are an important institutional element, which conditions the emergence and operations of local production systems and complements activities of other institutions.

NGOs reflect the increasing importance of social capital for social and economic development of countries and regions and the role of networking of various aspects of social and economic activities. The classification of clusters by L. Knop includes the concept of a cluster as a social network (together with a cluster as an agglomeration, industrial district, and knowledge-based network), where NGOs play a dominant role and methodology is based on the theory of social networks¹.

NGOs, by operating in areas, in which other institutions are unable to ensure meeting the needs to the fullest, play a double role: social and economic. The latter is fundamental for the emergence and operations of local production systems. Within this role, NGOs focus on supporting enterprise and innovation through²:

- disseminating knowledge and skills through consulting, training, information offered by training and advisory centres,
- assistance in the transfer and commercialisation of new technologies within technology transfer centres,
- financial assistance (*seed* and *start-up* funds) from para-banking borrowing funds and loan guarantees,
- advisory, technical and accommodation assistance for start-ups in the first period of their operations in enterprise incubators and technology centres,
- developing clusters and mobilising innovation environment by combining business services and other forms of assistance to companies in technology parks, business zones, industrial parks.

Polish experiences show that NGOs by creating specific clusters (the so called social economy clusters) may also fulfil an important social role³. There are occasions when participants to a cluster decide that in order to continue their operations they need to establish a non-profit organisation that would support the participants of a cluster in building up their competitive advantage. An example can be the Venture Silicon Valley in the US, an NGO established in 1993 in response to the increasing competitive pressure of Japan and countries of East Asia and designed to maintain the development of Silicon Valley cluster⁴.

Results of research conducted in Poland⁵ lead to some important conclusions on the role of NGOs in the emergence and operations of clusters. Firstly, although a cluster is usually initiated by private operators, they mostly do so in cooperation with R&D sector, public institutions and NGOs. Out of 47 clusters analysed in 2010⁶, 10 started upon the

¹ Knop L. Kluczowe założenia analizy klastrów, Organizacja i zarządzanie no. 4(16) 2011, p. 46.

² Matusiak K.B., Mażewska M. Wspieranie małej i średniej przedsiębiorczości w świetle ustawy o promocji zatrudnienia i instytucjach rynku pracy, Ministry of Economics and Labour, Warsaw 2004, p. 55.

³ Examples of clusters in sociaconomy can be found in, e.g.: Inicjatywy klastrowe na gruncie ekonomii społecznej, Białystok 2011, http://www.pes.efort.pl/do_pobrania/2011/inicjatywy_klastrowe.pdf (access on 16.09.2013); Kraciński P., Ekoturyska – forma aktywności gospodarczej na obszarach wiejskich na przykładzie podlaskiej wsi Okopy, http://kne.sggw.pl/files/Ekoturystyka_-_forma_aktywnosci_gospodarczej_na_obszarach_wiejskich_na_przykladzie_podlaskiej_wsi_Okopy.pdf (access on 16.09.2013)

⁴ For more see: <http://www.jointventure.org/>

⁵ See Cluster Benchmarking in Poland – 2012. Survey Report, Polish Agency for Enterprise Development, Warsaw 2012; and Cluster Benchmarking in Poland – 2010. Survey report, op. cit.

⁶ Cluster Benchmarking in Poland – 2010. Survey report, op. cit, s. 28; Dzierżanowski M., Rybacka M., Szultka S, Rola klastrów w budowaniu gospodarki opartej na wiedzy, Gdańsk, Szczecin 2011, p. 50.

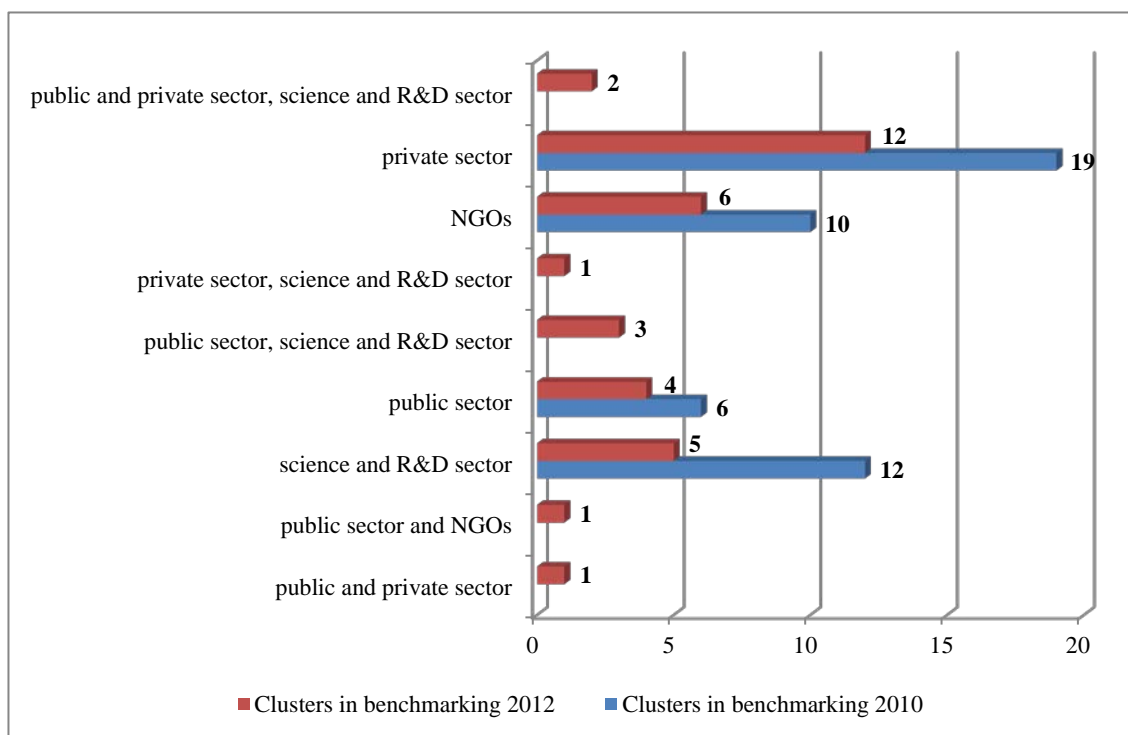
initiative of NGOs. Among 35 clusters included in the 2nd edition of benchmarking study in 2012, 6 were initiated by NGOs¹. The comparison of data for 2010 and 2012 clearly demonstrates the importance of NGOs in cluster initiatives in Poland (Figure 3).

Secondly, almost every cluster in Poland includes representatives of NGOs. At the same time, it is usually stressed that NGOs are partners in a cluster and that they do not participate in a formal network. Thirdly, analyses conducted for Poland demonstrate that the best results are achieved by clusters, which follow the Dutch model². The model is based on a modern cluster management structure and uses synergy effect resulting from the involvement of private and public sectors and NGOs in cluster support activities³.

The results confirm that NGOs are important for the establishing, operating and supporting local production systems. They facilitate networking among cluster members and, by that, generate added value and enable a more stable development of a given local production system.

The role of NGOs in developing clusters was also noticed in Polish strategic documents, e.g., in the Social Capital Development Strategy 2011–2020 in priority 4.2. Enhancing the role of culture in social and economic development, one of the measures is about supporting and promoting clusters with institutions of culture as cluster participants, NGOs and private sector operators.⁴

It seems that as a result of increasing networking in global economies, also in the Polish economy, and increasing importance of human and social capital in inducing economic growth, the development of local production systems will become more dependent on the support of NGOs.



Source: Cluster Benchmarking in Poland – 2012. Survey Report, Polish Agency for Enterprise Development, Warsaw 2012, p. 35.

Fig. 3. Cluster initiators

¹ Cluster Benchmarking in Poland – 2012, op. cit., pp. 23–24.

² Cluster development models include, besides the Dutch model, Danish, American and Italian models.

³ Cluster Benchmarking in Poland – 2012, op. cit., p. 98.

⁴ Social Capital Development Strategy 2011–2020, Ministry of Culture and National Heritage, Warsaw 2011, p. 87.



CONCLUSIONS

Local production systems should play a crucial role in the shaping of innovativeness and competitiveness of economies at local, regional but also national and global levels. Their development depends upon various factors, among which institutional determinants should be considered the most important. Hence the paper makes an attempt to identify key institutional conditions that determine the development of LPS in Poland. It focuses on the shift of paradigm when it comes to the role of social capital in social and economic development and ways of supporting the development by R&D institutions. We also specify conditions that should be met by public institutions (mainly public authorities) and NGOs to offer support to local production systems.

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FORMS OF COOPERATION OF ENVIRONMENTAL PROTECTION IN POLAND – DETERMINANTS, SCOPE AND DEVELOPMENT POSSIBILITIES

*Agnieszka Rzeńca*¹

INTRODUCTION

Environmental goods, that is, all natural resources, animate and inanimate, natural and changed by the human being, which provide the human being with essential “products” and services, have an influence on social welfare. Among environmental goods one can indicate consumer goods and non-consumer goods. Consumer goods are used directly by the human being for the accomplishment of biological and economic functions (including production and consumption) and indirectly for the accomplishment of social functions. On the other hand, non-consumer goods are a value for other species and for the human being because of their souvenir and historical value etc. Irrespective of divisions and classifications, environmental goods are nowadays a priceless value determining economic and social processes and conditioning the standard of living. They constitute an essential basis and condition for evolving a durable and sustainable development on a local, regional, national and international scale. However, they are burden with an excessive pressure and their condition and quality is worsening, due to this fact numerous initiatives are being undertaken in order to limit or neutralize the negative influence of a human being.

Environmental protection is an activity oriented at human needs and it means providing, in a long period of time, resources, formations and values necessary for current functioning of a human being and retaining the continuity of the most important processes in human surrounding. The comprehensive environmental protection consists of:

- protection and rational management of natural resources in accordance with the durable and sustainable development principle;
- protection of particularly valuable qualities of the natural environment;
- restoring the environmental elements to their original condition;
- preventing environmental pollution;
- protection of human life environment against burden and arduousness.

On account of the importance and scope of the environmental problems, a multi-aspect cooperation of various entities is essential in order to intensify the activities and increase their effectiveness. The subject of the chapter is then cooperation in the scope of environmental protection in Poland, with a particular account of ecoclusters as a new dynamically developing form of cooperation. The basis for the discussion concerning cooperation is identification of its conditioning and main determinants, defining the main areas of cooperation and presenting chosen examples of the accomplished forms of cooperation in Poland.

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ORGANISATIONAL-INSTITUTIONAL DETERMINANTS OF ENVIRONMENTAL PROTECTION IN POLAND

Cooperation determinants in the scope of environmental protection in Poland are a consequence of determinants and solutions in the scope of the whole environmental protection system which were influenced by political, economic and social processes of the nineties. At that time environmental protection system was restructured, or, in fact, built from scratch, since at that time I Environmental Policy of the State, a national document identifying environmental problems and indicating environmental aims, was drawn up.

The policy records were confirmed by the Constitution of the Republic of Poland in which it was emphasized that: “public authorities are committed to ... prevent degradation of the environment harmful for health” and “...Every entity is committed to take care of the environment condition and is responsible for causing its deterioration”¹. The ideas accomplished then are reflected in the present legal system, although it was modernised and updated because of the European Union integration process.

Environmental protection system in Poland is based on two pillars of public administration: government and self-government public administration (tab.1.) and authorities and institutions connected with them (Table 1). Due to the division of tasks and competences, they constitute a system of mutually connected networks of cooperation, remaining in rapports and relations both horizontal (Voivode – Voivodeship Marshal – Regional Director of Environmental Protection) and vertical (commune head / mayor / president – Voivodeship Marshal).

Table 1

Environmental protection system in Poland

Public administration organization level	Public administration entities
National level	Minister of the Environment Chief Environmental Protection Inspector, President of the National Atomic Energy Agency, President of the National Water Management Authority, Chief Geologist of the State, Chief Nature Conservation Officer
Voivodeship level	Voivode Voivodeship Marshal Regional Director of Environmental Protection
Poviat level	Poviat Starost Poviat Board Poviat Council
Commune level	Commune head / Mayor / President Commune Council / City Council Self-government authorities

Source: own work on the basis of legal acts

Most of the task in the scope of environmental protection was assigned to self-government administration authorities. Among these tasks the following can be distinguished:

- tasks executed directly; accomplishing them has a direct impact on environmental condition by determining the scope of its usage (e.g. monitoring of building development processes and spatial usage) and protection against harmful influences (e.g. retaining and nurturing of green areas, sewage disposal and waste water purification);
- binding-rationing tasks are connected with shaping the legal situation of the entities using the environment; their accomplishment is carried out through issuing appropriate

¹ Konstytucja Rzeczypospolitej Polskiej, Dz.U. 1997, nr 78, poz. 483. Rozdział II.

documents estimating the ways of environmental usage and imposing definite obligations on those causing pollution;

- monitoring-supervising tasks connected with research concerning environmental condition and controlling the legality of activities of the entities using the environment¹.

The above tasks were assigned to particular administrative authorities. According to the above division it is assumed that the executive tasks are addressed mainly to communes. The second type, binding-ratifying tasks, is usually assigned to one-person authorities “with estimating the general property of one of them (starost) and exceptions in favour of the others”². With accomplishing the monitoring-supervising tasks are burdened mainly the specialized inspection authorities and monitoring authorities in the scope of environmental protection. A common task of self-government administration is strategic planning in environmental protection. That is drawing up voivodeship, poviats and commune programmes of environmental protection and waste management plans.

Table 2

The authorities and institutions of environmental protection and their characteristics

Authorities and institutions	Characteristic and scope of activities
National Council of Environmental Protection	Advisory and consultative body of the Minister of the Environment and also other bodies on the basis of separate acts. It may express its opinions, positions on its own initiative or on application of the interested entities. The Council works out assessments concerning environmental protection regarding legal act projects, new protected areas projects and also proposes the directions for creating the optimal environmental protection and sustainable development.
Environmental Impact Assessment Committees	The body that serves with advisory and consultative help to The General Director of Environmental Protection (The National Committee for Environmental Impact Assessment Committee) and to the Regional Director of Environmental Protection (Regional Environmental Impact Assessment Committees). Members of these committees are the representatives of science, practice and environmental organizations that participate in various procedures. They issue opinions and monitor the functioning of environmental impact assessment system or similarly to the former institution they issue opinions of the matters concerning legal act projects.
Environmental Protection and Water Management Funds	The fund was appointed in order to appropriately manage the means from the environmental fees and fines. It has a dual-level structure: The National Fund for Environmental Protection and Water Management and Voivodeship Environmental and Water Management Funds.

Source: own work on the basis of legal acts

As a result of public administration reform carried out in the nineties, a governmental administration body in the field was set up, which was assigned among others the tasks in the scope of environmental protection. Its representative is the Voivode that is the head of united governmental administration, the supervising body over the self-government territorial units. At present, a voivode is responsible for the activities and the usage of necessary means to remove damages and their effects harmful for people and the environment. In this scope also the obligations on administrative authorities and entities using the environment may be imposed by the voivode³.

¹ Górski M. Prawo ochrony środowiska [w:] *Materiałne prawo administracyjne. Pojęcia, instytucje, zasady*, red. M. Stahl, Difin, Warszawa 2002, s. 240–241.

² Strus D. Instytucjonalne aspekty finansowania ochrony środowiska w Polsce, <http://www.law.muni.cz/sborniky/dp08/files/pdf/financ/strus.pdf>

³ Lebowa D. Organy ochrony środowiska [w:] *Prawo ochrony środowiska*, red. J. Stelmasiak, LexisNexis, Warszawa 2009, s. 64–65.

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The supplement of the discussed above system constitute the appointed authorities and institutions serving for the needs of environmental protection that is: The National Council of Environmental Protection, Environmental Impact Assessment Committees, Environmental Protection and Water Management Funds (Table 2). They have definite rights but they do not act imperiously. They become a part of the system of the entities shaping the conditions for accomplishing environmental protection and participating in activities for the sake of environmental protection. They support the accomplishment of the tasks of public administration units and have an actual influence on various types of activities of natural or legal persons that is citizens, enterprises, non-governmental organizations.

COOPERATION IN THE SCOPE OF FINANCING THE ACTIVITIES IN THE SCOPE OF ENVIRONMENTAL PROTECTION

Financing the undertakings in the scope of environmental protection is the process that is constantly and rapidly developing in the financial service market. Worth attention is the fact that the results that Poland attained in this aspect are the consequence of setting up an effective and integrated financing system at the beginning of the nineties. The basis of this system is environmental protection and water management funds that are the expansion of the state's function in financing the activities in the scope of environmental protection¹. The National Fund for Environmental Protection and Water Management (NFEP&WM) and 16 independent voivodeship funds finance the activities for the sake of environmental protection and water management, accomplished in accordance with the state's environmental policy and environmental objectives resulting from the international obligations². Those funds collect mainly the incomes from the fees and fines for economic usage of the environment and pollutant emission to the environment. They are in the form of intentional funds which means that the means are allotted only for enterprises serving natural environmental protection in the whole country and the financial backing may be in the form of a soft loan, a credit or a subsidy³. The financial backing may be used by territorial self-government units as well as by other authorities and public administration institutions, economic entities (big, small and medium enterprises) and natural persons. The funds give an opportunity of a vast spectrum of cooperation in the scope of modernization as well as infrastructure and technology development, implementing new proecological solutions in public and private buildings and promotional and educational buildings.

The mission of the National Fund is financial banking for the undertakings that serve environmental protection and respect for its value based on the rule of the sustainable development. In the last 20 years, the fund played a significant role in improving the environmental condition in Poland. Between 1989–2000 it made over 14 thousands of agreements (mainly for subsidies, loans and credits granted via the Environmental Protection Bank) thus giving almost 21.4 milliard zł for financing the environmental undertakings. The cost of the undertakings subsidized at that time by the means of National Fund exceeded 76.5 milliard złotych.

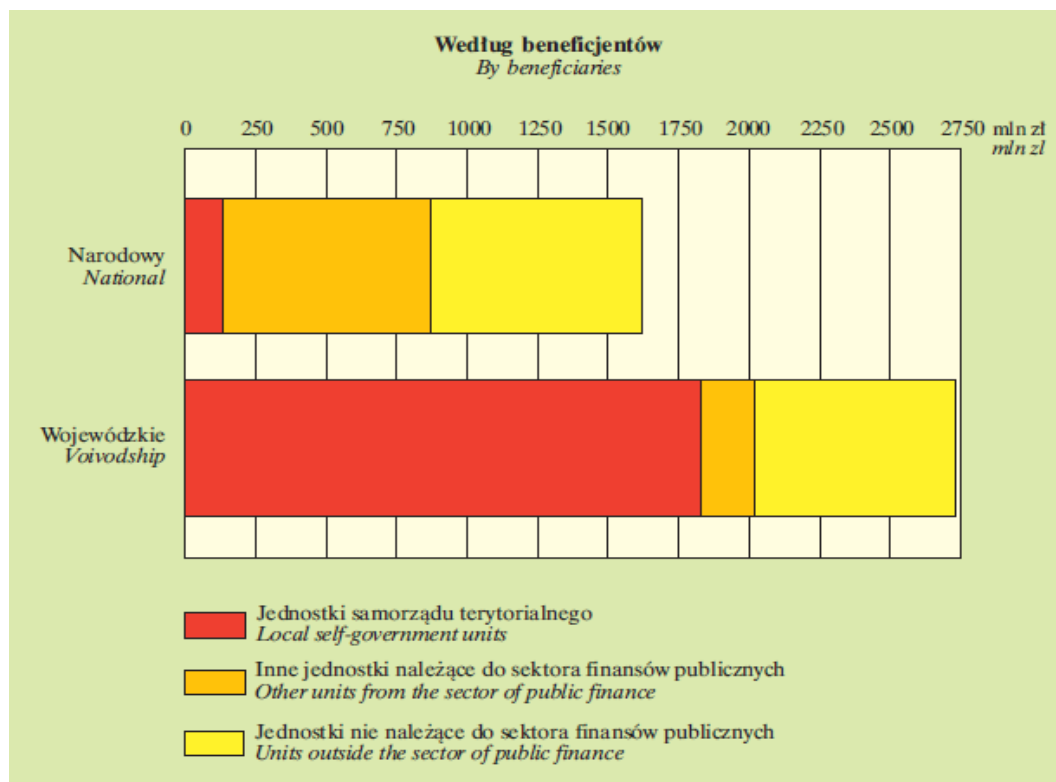
The National Fund for Environmental Protection and Water Management cooperates mainly with units that are not a part of the public sector (big enterprises, concerns etc.) and public administration units other than territorial self-governments (e.g. Chief Inspectorate of Environmental Protection and Voivodeship Inspectorates of Environmental Protection, units

¹ Famielec J. System finansowania ochrony środowiska w Polsce, Wydawnictwo Akademii Ekonomicznej w Krakowie, Kraków 2005, s. 120.

² Fundusze w systemie finansowania, www.wfosigw.pl/strona-glowna/finansowanie-ochrony-srodowiska, dostęp 11.09.2013.

³ Stefański M. Finanse w ochronie środowiska, Wyższa Szkoła Humanistyczno-Ekonomiczna we Włocławku, Włocławek 2004 s. 54.

accomplishing tasks in the scope of national monitoring of the environment). On the other hand, Voivodeship Environmental Protection and Water Management Funds cooperate mainly with territorial self-government units and finance regional and local projects. Taking into account territorial self-government units, the size of financing by Voivodeship Environmental Protection and Water Management Funds is over 14 times greater in comparison with The National Fund for Environmental Protection and Water Management, which however does not downgrade the importance of any of them (Figure 1).



Source: Environmental protection 2012, Central Statistical Office, Warsaw 2012, p.590

Fig. 1. The size and structure of financing from the means of Environmental Protection and Water Management Funds in 2011.

Environmental protection funds are a pillar of Polish financing system of environmental protection also in the scope of efficient and effective usage of the means coming from the European Union, allotted for modernization and the development of environmental protection infrastructure in Poland and backing for projects aimed at achieving by Poland standards required by the EU. In 2007–2013 the fund is responsible for the absorption of about 5 milliard euros for the accomplishment of tasks mainly in the scope of water and sewage management, waste management, water management, environmentally-friendly energy, wildlife conservation and environmental education.

A wide range of tasks to be accomplished in the scope of environmental protection and long-standing backwardness in the scope of environmental protection are connected with big expenses. Also, because of the fact that environmental protection, particularly as for restoring its elements to the actual condition is a very expensive undertaking, setting up by the state institutions co-financing proecological initiatives contributes to decreasing or, there is also such a possibility, to eliminating the negative impact on the environment¹.

¹ Strus D., *Instytucjonalne aspekty finansowania ochrony środowiska w Polsce*, <http://www.law.muni.cz/sborniky/dp08/files/pdf/financ/strus.pdf>, dostęp 10.10.2013.

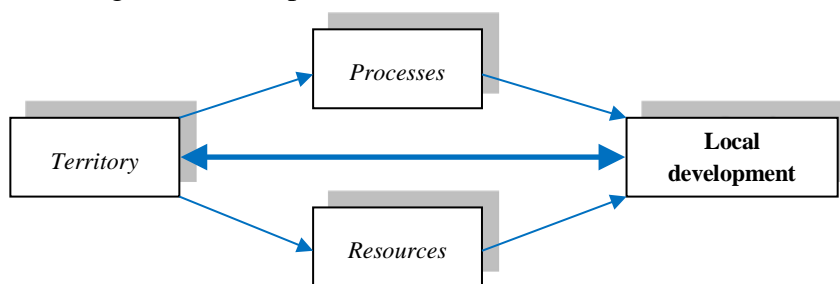
Polish financing system of environmental protection is based on a multilevel cooperation, which main links are The National Fund for Environmental Protection and Water Management and Voivodeship Environmental Protection and Water Management Funds, and is characterized with:

- durable, almost assured sources of the means for financing environmental protection and investment in this scope;
- dominance of the non-budget financial means;
- effective usage of financial means, due to the systematic implementation of market mechanisms;
- dependence of financial help on environmental policy objectives of the state;
- systematic adjustment to the European Union directives¹.

The presence and availability of their financial means motivates various entities to active proecological activity, it also boosts the effectiveness of the undertaken actions and encourages to a wider cooperation. It enables to plan the accomplishment of investments in the scope of environmental protection taking into account institutions supporting them and looking for further sources of financing and maybe new partners.

COMMUNE AS A SUBJECT OF COOPERATION IN THE SCOPE OF ENVIRONMENTAL PROTECTION

Local development is “a process of diversification and increase of economic and social activities on a particular territory, which means motivation and coordination of the own resources and energy”² (Figure 2). It means a set of quantity changes and quality transformations concerning the particular territory, the standard of living of the inhabitants and functioning conditions of business entities³. These changes concern as well the condition and quality of the environment, neutralization and minimization of the negative direct effects of human activity, infrastructure development of environmental protection, improving environmental security and usage of natural potential.



Source: own work

Fig. 2. The importance of local development

Coming back to internal endogenous material and non-material resources of territories is a way of searching for and using the assets present there in order to revive and reinforce its development but also to eliminate and minimize or prevent the appearing barriers and problems both internal and external.

¹ Stefański M. *Finanse w ochronie środowiska*, WSHE we Włocławku, Włocławek 2004, s. 39.

² Szerzej A. Jewtuchowicz, *Rozwój terytorialny a strategie lokalizacyjne przedsiębiorstw*, [w:] Jewtuchowicz A., *Terytorialne i ekologiczne aspekty rozwoju gospodarczego*, “Folia Oeconomica” nr 143, Wydawnictwo Uniwersytetu Łódzkiego, Łódź, 1997.

³ Wojtasiewicz L. *Ekonomiczne uwarunkowania rozwoju lokalnego* [w:] J.J. Parysek, *Rozwój lokalny i lokalna gospodarka przestrzenna*, Bogucki Wydawnictwo Naukowe, Poznań 1996.

Resources and values of the natural environment may be an important incentive for the development of a territorial unit and may constitute a determinant for its development. Commune as a basic unit of public administration may base its development on environmental goods. On the other hand, commune is responsible for the condition and quality of the environment on its territory and retaining the infrastructure of environmental protection. Thus, from the commune depends its development policy also in the scope of environmental resources usage and determining the environmental security conditions and initiating cooperation in the scope of environmental protection.

According to the legal articles, the obligatory (compulsory) tasks of a commune involve among others the matters of spatial and environmental order and technical infrastructure¹. The first subgroup that belongs to the individual tasks of a commune is spatial and environmental order. As an issue of spatial order one understands the matters connected with retaining urban planning order in the commune's area through appropriate spatial planning and the right direction of land development including the areas of great natural interest. To the tasks that constitute the environmental order one can rank those that allow for neutralizing harmful impact of the local society and have a motivating and stimulating influence on the society and business entities, and they concern efficient and economical usage of environmental resources (saving water, waste segregation, care of green areas).

The next subgroup of tasks handed over to communes that have a strong connection with shaping environmental order is ensuring appropriate technical infrastructure that is these infrastructure objects and devices that are essential for appropriate functioning of the commune. These include the commune roads, squares, bridges, sewage system, sewage treatment etc., that is all devices that are necessary for correct and appropriate functioning of a commune and serve the inhabitants.

Communes constitute then a basic link of an environmental protection system. Due to its autonomous character and scope of the assigned tasks and competences, they are an active entity managing the territory also in the matter of using environmental resources as well as environmental values protection. They may also be an initiator and co-originator of various forms of cooperation and mark their presence in various areas. In a creative and flexible way, they may manage their territory, react to changes, and actively search for the alternative ways of the accomplishment of the assumed objectives also in environmental protection. An example of an optional activity of communes can be a participation in an ecocluster organization and developing their activity.

ECOCLUSTERS – A NEW AREA OF COOPERATION IN ENVIRONMENTAL PROTECTION

The areas of cooperation in the scope of environmental protection are indicated first of all by the law regulations. They indicate the entities accomplishing the assigned tasks and competences and they determine the procedures and the scope of cooperation. The indicated entities of the environmental protection so to speak are “sentenced to” take up cooperation in the expected areas: (e.g. issuing permissions, issuing opinions, and agreeing on administrative decisions etc.). This form of “administrative” cooperation is yet needed because it allows for the accomplishment of the essential, frequently necessary activities and providing environmental protection on an appropriate level. However, it does not prevent the possibility of expanding and taking up cooperation in other areas of environmental protection.

¹ To other formerly mentioned individual tasks belong also tasks concerning: social infrastructure, order and public security, promotion and public relations.

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An example could be here establishing cooperation of the entities of environmental protection with environmental protection funds and other financial institutions in order to obtain means for accomplishing environmental protection tasks.

A brand new formula and area of free cooperation of various entities connected with a widely understood environmental protection are ecoclusters. A cluster is “one of the territorial forms of enterprising environment organizations, defined first of all by two basic parameters: network relations and territory. A territory means that a cluster is defined and is established due to a specific location in space that defines its value and developmental potential. The network, on the other hand, allows for a fast and cheap way of using the resources available in the area (material and non-material) as factors producing goods and services”¹. It can be stated that clusters are another, higher form of spatial concentration of business activity than “marshal industrial districts”².

Despite the multitude of definitions both in foreign and national literature, the meaning of geographical and sector concentration of the enterprises, market and non-market connections between them and other active entities of a particular territory and character and durability of the relations and innovations, is emphasized by all of them³. The relations of geographical proximity gain a specific meaning especially in the context of the activity development, building enterprising potential and other entities as well as breaking the barriers, eliminating or minimizing the arising problems. The essence of a cluster are innovations and processes of interactive learning that give a possibility of absorption of a variety of many types of knowledge and experience exchange.

The modern forms and methods of cooperation regarding network organization that are among others local production systems, create possibilities of the accomplishment of environmental protection objectives and the development of enterprises in a widely understood environmental protection branch or other branches closely connected with it. The common ground for clusters may be widely understood environmental protection branch and common purposes and tasks of different entities, not only enterprises, accomplished in the scope of environmental policy. According to environmental protection, a crucial factor is the fact that clusters exhibit the territorial dimension of the development processes through spatial concentration that is geographical proximity of the entities functioning in the same or related branch and are a response to the necessity of diminishing transactional expenses, effective usage of resources/potential, adjustment to changes forced by the globalization both on a local and regional scale. The key factor is that this innovative form of cooperation may concern traditional and modern economic sectors. It may be accomplished in agriculture sector e.g. in the scope and specialization of ecological agriculture, renewable energy sources that is biomass or waste management that is building its system. Thus, ecoclusters that are a form of casual open economic organizations that have a definite market identity through the branch and the area of their activity, in this case environmental protection, constitute an essential area of cooperation and its new form.

¹ Szerzej A Nowakowska [w:] Nowakowska A., Przygodzki Z., Sokołowicz M.E., 2011, *Region w gospodarce opartej na wiedzy. Kapitał ludzki-innowacje-kooperacje transnarodowe*, Difin S.A., Warszaw, s. 107.

² Budner W.W. *Geografia ekonomiczna. Współczesne zjawiska i procesy*, Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu, Poznań 2011.

³ Porter M.E. *Porter o konkurencji*, PWE, Warszawa 2001, Rosenfeld S.A., *Bringing Bussines Clusters into the Mainstream of Economic Development*, European Planning Studies, 1997 (1), Cooke P. *Knowledge Economies: Clusters, Learning and Cooperative Advantage*, Routledge, London-New York 2002, Gorynia M., Jankowska B., *Klastry a międzynarodowa konkurencyjność i internalizacja przedsiębiorstwa*, Difin Warszawa 2008.



ECOCLUSTERS AS A FORM OF COOPERATION INTEGRATING ENTITIES FOR THE SAKE OF ENVIRONMENTAL PROTECTION

Presently, a multilevel cooperation integrating private and public entities is necessary in order to improve the environmental quality in its strategic areas. A fundamental factor differentiating clusters is the branch of the enterprises activity, character and durability of the relations and appointed common objectives. In case of ecoclusters the activity area is widely understood environmental protection, more precisely defined by the field of the specific activity. Thus, among ecoclusters one can set apart organic food clusters, innovative cars clusters, passive construction clusters and widely understood energy clusters.

A great part of cluster initiatives is an actual sign of self-organization and activity of local and regional enterprising environments represented by the entities of private and public sector. The dominant role in clusters, including ecoclusters play business entities, however, as notices M. Porter, participation of a public partner (of local authorities) in creating and developing clusters is possible or even recommended. A local government may be an initiator of the activities leading to establishing cooperation that is creating organizational conditions and “atmosphere” for the undertaken initiative, building potential of a territorial unit by stimulating the activity in the dominant strategic branch. On one hand, a local government may be seen as a participant of cluster activity, on the other hand, as a beneficiary, their direct “consumer”. An important participant of the cooperation processes concerning clusters is also R&D sector, which decides about the innovation and competitiveness of the undertaken initiatives and their popularization.

Among the identified 44 ecoclusters in Poland, the great majority constitute clusters connected with renewable energy branch and branches related. Data available for 42 ecoclusters (from 44) indicate that a great majority of the entities participating in a cluster constitute enterprises (68%), R&D units constitute 12%, business-related organizations 11%, and about 9% constitute other entities including local governments. As co-participants of ecoclusters are mentioned also non-governmental organizations, associations, education centers and schools (primary, secondary and post-secondary).

First ecoclusters in Poland were established in 2003. The biggest number of this type of undertaking appeared in 2006–2009. Since 2011 the next wave of organizing this type of cooperation was noticed¹. Ecoclusters that were established as first focused their activity on renewable energy branch, in the recent years a diversification of clusters’ activity is observed, although still the renewable energy clusters (energy clusters) are dominating, a new area of activity is among others waste management and environmental protection.

It has to be noticed that ecoclusters in Poland because of their newness are rather dynamic form of cooperation. Some of them are only projects and they end their activity with the accomplishment of the project, others on the contrary develop their activity. New cluster initiatives are established in completely new areas of environmental protection which shows that there is a need and will for undertaking this form of cooperation.

¹ The process of initiating and development of clusters in Poland connected with the possibilities of financing this type of initiatives. In 2007–2008 such possibilities gave the participation in pilot programme accomplished by PARP “Support for a cluster development” and application for the means from Integrated Operational Programme of Regional Development, Activity 2.6. Regional Innovative Strategies and Knowledge Transfer. The new period of programming 2007–2008 gave also the possibilities due to the availability of structural funds from Innovative Economy Operational Programme, Activity 5.1 Supporting supraregional cooperative relations.

CONCLUSIONS

The review of cooperation in the scope of environmental protection in Poland enables to claim that environmental protection as a form of activity, because of its character, requires a wide multilevel cooperation. It may be accomplished on the basis of the assigned obligatory tasks and competences that is as it were forced by the law regulations, on the other hand it may be driven by a financial factor of obtaining backing for the accomplishment of both the compulsory as well as optional activities.

Cooperation in the scope of ecoclusters gives an opportunity of collective and effective activity for the sake of environmental protection and except for the notable individual benefits for enterprises we can come across the benefits that are public goods generated with regard to interaction between entities. Partnership of different stakeholder groups for the sake of improvement of the quality of the environment through the development of product, technology and organization innovations and their popularization, approval and implementation is particularly important and serves creating and accomplishing environmental policy on a national, regional and local scale.

Regardless of the scope and area of the activity for the sake of widely understood environmental protection, cooperation stimulates all entities and increases the effectiveness of the undertaken activities by different environmental protection entities. It generates reasons for streamlining the decisions concerning the allocation of means for the aims connected with environmental protection and managing its resources and the possibility of minimizing the social expenses of environmental protection. Cooperation, mostly in the scope of a cluster, supplements or reinforces the activity of legal and administration instruments. It has a more or less direct impact on the level of accomplishment of a widely understood utility function or the function of business entities, R&D units and local government units or households objectives.

On account of the importance and scope of the environmental problems, a multi-aspect cooperation of various entities is essential in order to intensify the activities and increase their effectiveness. The subject of the chapter is then cooperation in the scope of environmental protection in Poland, with a particular account of ecoclusters as a new dynamically developing form of cooperation. The basis for the discussion concerning cooperation is identification of its conditioning and main determinants, defining the main areas of cooperation and presenting chosen examples of the accomplished forms of cooperation in Poland.

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LOCAL GOVERNANCE MEETS RELATIONSHIP MARKETING – COLLABORATIVE APPROACH TO CITY MANAGEMENT¹

Justyna Anders ²,
Wawrzyniec Rudolf ³

“... organizations cannot have relationships; only people can...”
Sue Goss

The paper aims at providing evidence on the contribution of relationship marketing (RM) to governance at the local level by strengthening collaboration capacities on the part of city authorities.

The three target groups for regional capitals were examined such as tourists, investors and students. These groups are characterized by greater mobility than local inhabitants, which makes their relationship with the city – a potential place for fulfilling their goals – a fully marketing one.

The research was carried out in selected Polish regional capitals. The data were gathered from structured, personal interviews with the senior managers in city offices. The interview scenario was based on reinterpretation of the concepts relating to market and societal orientation against the background of good governance criteria.

The authors assumed that the perception of investors, tourists and potential students as customers of local authorities coexists with greater propensity to engage stakeholders in the processes of governance. In parallel – collaboration with stakeholders should improve quality of services and values offered to customers.

INTRODUCTION

The aim of the paper is to describe the relationship between governance and relationship marketing (RM) as seen by city managers responsible for local development. The authors are concentrating on the processes aimed at attracting investors, tourists and students, as well as on activities for creating favorable conditions for the development of entrepreneurship.

Contemporary processes of globalization and regionalization of the international economy result in greater competition among localities for the financial and human capital. These economic factors have increased their mobility, which in Europe is partly a result of the single European market project that Poland joined in 2004 with the accession to the EU. In order to succeed in this competition, municipalities need to develop a complex offer with an attractive package of benefits (Kotler et al., 1999). Integrated actions by different local actors willing to share their resources may result in new investments, an inflow of tourist, new students and the development of entrepreneurship in a specific location.

¹ The paper is a part of research within a project financed by the Ministry of Science and Higher Education in Poland, grant number: N N115 364339, the results of this study were presented as conference papers during IASIA Conference 2012 and EGPA Conference 2012.

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The study relates to current issues and challenges of local government with metropolitan ambitions. The authors are aware that the processes of public administration reforms in Poland are still in an early phase. The New Public Management instruments such as effectiveness indicators, outsourcing and subcontracting, valuation of working places, quality management and management by objectives in public finance are widely promoted in Poland with the support of Structural Funds, but the governance approach is still not widely recognized (Anders, 2011a).

In this context, the study aims at providing evidence on the contribution of relationship marketing (RM) to good governance at the local level by strengthening collaboration capacities on the part of city authorities. The authors also try to identify and assess significance of barriers for the development of RM in the local government (regional capital cities).

CITY AND ITS STAKEHOLDERS FROM THE MARKETING PERSPECTIVE

The first attempts to use the marketing concept in territorial governance were the efforts to adopt transactional marketing to specificity of a public organization (in this case the municipal office). The relationship between the city (its authorities and administration) and its resident is seen by many authors as relationship marketing. They argue that authorities seek to satisfy needs of residents by developing infrastructure, building the image and creating opportunities for development (Domański, 1997). However, placing the resident in the position of the customer is controversial since in the case of many municipal services there is no real choice of provider and negative assessment of actions undertaken by local authorities may result only in a political response (failure to participate in the next election or voting for other candidates). Although internal mobility of citizens in the EU has been increasing since the introduction of the Internal Market, cultural, economic and personal reasons effectively inhibit the free movement of people.

The paper assumes that it is the mobility of entities which is the determining factor in the existence of the competitive situation within territorial marketing that would create space for the use of marketing in city management. This condition is met by such entities as investors, tourists and potential students who are carriers of development factors and increasing mobility (capital, labor). This mobility is determined by processes of globalization and regionalization (EU), which in turn encourages municipal authorities and managers to make greater efforts aimed at attracting and retaining these entities. This approach is part of the trend of “Marketing Places” represented by Ph. Kotler (1999) who sees customers of territorial marketing in such groups as investors, manufacturers, corporate headquarters, new residents, tourists, conventioners and exporters. It is worth noting that all these actors are characterized by a high degree of mobility.

The model proposed here also assumes that the target groups are mobile agents: investors, tourists and students remaining outside the territory. They are, therefore, covered by the term of the city customer, although the term of the potential user, which has been employed in the recent years in relation to the territory, is probably more apt. (Rudolf, 2006). In this model, the local community is perceived as city shareholders. On their behalf and in their interest, local authorities and public managers acquire mobile growth factors and maximize value of their acquisition.

This paper, therefore, adopts the definition of marketing proposed by P. Doyle (2003) adapted to the undertaken research problem:

“Marketing is a governance process aimed at maximizing returns for stakeholders (i.e. residents) by consolidating relationships with valued customers (investors, tourists, students) and creating a competitive advantage”.

Inspired by the model of six markets relating to business relationship marketing (M. Christopher, A. Payne, D. Ballantyne, 1994), the authors of the paper have proposed a model of city relationship marketing in the process of attracting investors, tourists and students. The target groups, which have increasingly greater possibilities of meeting their needs at the regional, national, European and global scale taking into consideration the growing competition of cities, are placed in the middle of the model. (Figure 1). For this study, the stakeholders of regional capital cities were divided into three categories: public, non-profit and business organizations. These groups have different needs and expectations regarding products and services provided by the city. In order to manage relations with heterogeneous constituencies, both local politicians (the mayor and PMs) and public managers should be able to make strategic decisions about the use of collaboration to increase organizational performance. Attitudes towards collaboration, understanding of cooperation benefits and specific ventures illustrating collaboration will be subject of the empirical part of this text.

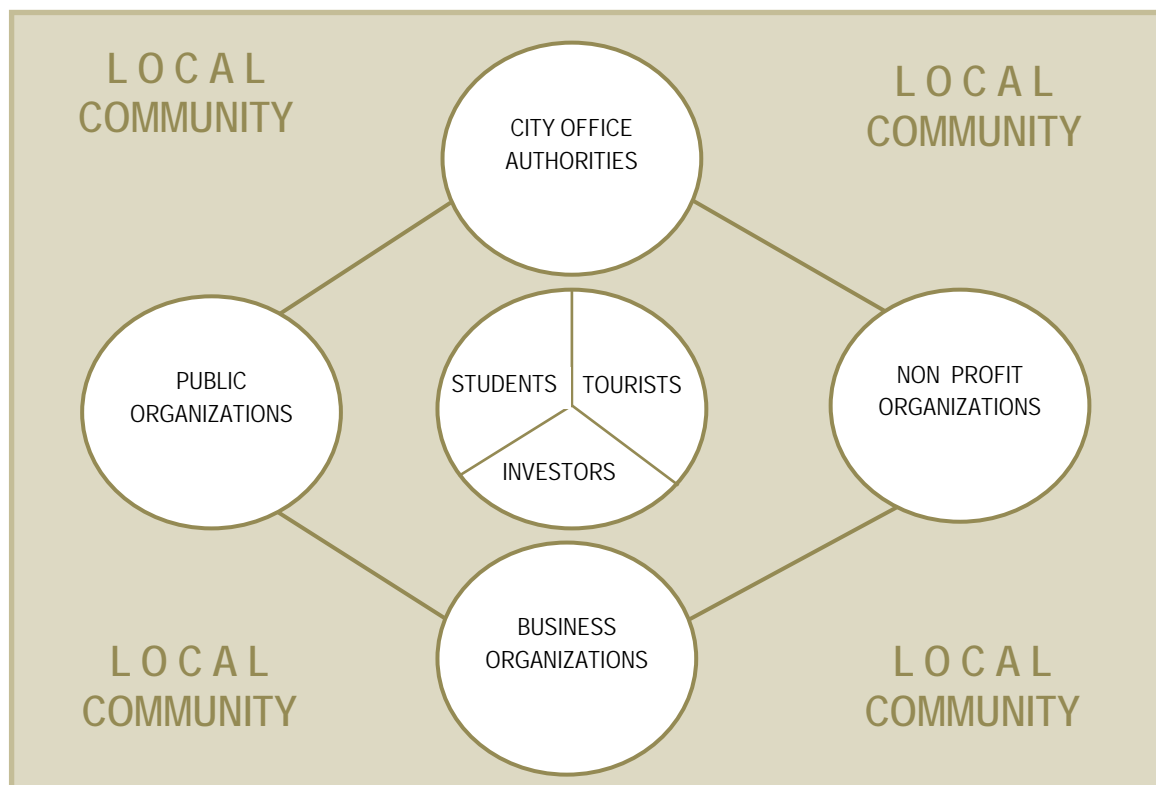


Fig.1. Model of relationship marketing in the process of attracting investors, tourists and students

The three target groups for regional capitals, i.e. tourists, investors and students, were examined taking into account their capacity to transfer development factors such as financial, human and knowledge based capital (Kotler, 1999). These groups are characterized by greater mobility than local inhabitants (Anders, Rudolf, 2013).

The concept of stakeholders emerged in the United States in the 60's, initially in the context of business operations. The stakeholder was the person or entity who was interested in the active-ties of the company and held various types of risks associated with its functioning (Freeman et.al., 2010). Over 20 years later, the concept of stakeholders was clarified by E. Freeman (1984). He pointed out that the company operated in a highly complex environment. He believed that the activities of companies were influenced not only by shareholders and suppliers but many other actors in the company's environment.

In relationship to local authorities, the authors have identified the following groups of the city (metropolis) stakeholders:

- Government (regional, national);
- International organizations;
- Business (enterprises, organizations aiming at creating favorable conditions for investments and tourism);
- Non-profits (universities, non-governmental organizations);
- Communities (city citizens – individuals);
- Media (international, national, local).

The research concentrated on selected stakeholders vital from the perspective of strategies aimed at attracting tourists, investors, prospective students and maintaining a positive relationship with local entrepreneurs.

Koliba, Meek and Zia (2011) characterize several types of relationships that link public, private and social actors. These are: inter-governmental relations, interest group coalitions, relations within regulatory subsystems, grant and contract agreements and public-private partnerships.

From the perspective of city authorities, inter-governmental relations will be bottom-up relations, i.e. with regional authority (the Marshal's Office), authority being representation of central government in the region (the Regional Accounting Chamber, the Voivodeship Office) and with central institutions (i.e. the Ministry of Regional Development, the Polish Agency for Information and Foreign Investment). It should be emphasized that the municipality is autonomous and independent of other levels of government in Poland. The city executes a number of public tasks which the central government delegates to the municipalities based on the Local Government Act. The relation with the regional self-government is mainly through functions connected with regional policy implementation, especially distribution of Structural Funds.

The Union of Polish Metropolises is the network of 12 large cities and an example of interest group coalitions. The organization operates as a voluntary association and offers measures based on a broad-based collaboration, exchange of experiences, initiating joint projects and consulting the laws affecting local development. The 7 out of 8 analyzed municipalities belong to that structure.

Regulatory subsystems involve the principal-agent type of relations where a private partner implements operations commissioned by local government. In 2004–2006 Regional Financing Institutions that were intermediate bodies for the Polish Agency of Entrepreneurship Development performed activities related to the Structural Funds also under regional components of the integrated operational program of regional development. Their legal status differed from region to region: i.e. in Łódzkie (Łódź) it was a limited liability company, in Lubelskie (Lublin) it was a non-governmental organization and in Świętokrzyskie (Kielce) it was a regional chamber of commerce.

Grant and contract agreements require long term relationships of private and nonprofit entities that choose to cooperate with local governments in the implementation of public projects. These relationships are characterized by dependency of subcontractors on the city government.

Public-private partnerships *sensu largo*¹ involve interactions of private and nonprofit organizations with public bodies in achieving the objectives of a public nature. An example might be a network of public, private and nonprofit partners cooperating to attract investors to the city or to the whole metropolitan area.

¹ In literature on public-private partnerships, this term is more precise and refers to contracts between public and private entity where risks and obligations are shared between partners and the private partner designs, provides, maintains and operates public infrastructure. These contracts lay on the continuum between public procurement and total privatization in provision of infrastructure utilized by the public. (Yescombe, 2007)

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The term collaboration originally appeared in business management. In order to distinguish it from other forms of organizational interaction with its stakeholders, Gray has proposed the four elements that the relationship has to meet in order to treat the relation as collaboration (Gray, 1989):

- the interdependence of stakeholders;
- the ability to address differences constructively;
- joint ownership of decisions and;
- collective responsibility for the future of the partnership.

Collaboration between organizations which are formally autonomous but functionally interdependent is crucial also in the field of public management (Ferlie, Lynn, Pollitt, 2005). For many public organizations, collaboration has become the primary strategy of coping with modern problems, such as complexity in the policy process, turbulent environments, dispersion of resources and expertise and the constant flow of new information (Fleishman, 2009). Thompson and Perry (2006) underline the significance of long term relationship in collaboration. They claim that: "... it is a process in which autonomous actors interact through formal and informal negotiation, jointly creating rules and structures governing their relationships and ways to act or decide on the issues that brought them together; it is the process involving shared norms and mutually beneficial interactions" (Thomson, Perry, 2006).

On the other hand, collaboration is a difficult task as it requires a cooperation of many organizations that have diverse and often conflicting objectives (Considine, Giguère, 2008). A number of authors observe that it is possible for collaborative partners to cooperate and compete for resources at the same time. The relationship lasts until the desired objective has been achieved (Stiles, 2001).

According to American researchers (Agranoff and McGuire, 2003), collaboration is not self-existent. In order to be the process of bringing benefits of multilateral external relations, collaboration must be consciously managed. The assumption of their research is that the city trying to strengthen its economic competitive position should not exclusively rely on traditional grants, loans or interest-rate subsidies but must also use many stakeholders to strengthen metropolitan economy (Anders, Rudolf, 2013).

For the purpose of this study, the cross-sectoral dimension of local government relationships is the most relevant. Cross-sector collaboration is the linking or sharing of information, goodwill and good intentions, resources, activities and power or capacities by organizations in two or more sectors to achieve jointly what could not be achieved by organizations in one sector separately (Bryson, Crosby 2008). The definition is visualized in Figure 1 which provides distinction to the similar terms: cooperation and coordination. The latter terms also do not capture the dynamic, evolutionary nature of collaboration. From this perspective, collaboration is best examined as a dynamic or emergent process rather than a static condition – a perspective that greatly complicates its empirical measurement (Sharfman et.al., 1991; Takahashi et.al., 2002).

As in the Polish academic literature and language the distinction between various forms of organizational sharing is not clear, the authors have decided not to differentiate them. As a result, in this paper the term collaboration is understood very broadly. It will be the collaboration of organizations whose goals to some extent coincide. It may result from both the voluntary willingness to work with potential partners but may also be enforced and supported by legal regulations (Anders, Rudolf, 2013).

PREVIOUS RESEARCH

A year after the collapse of communism in 1989, Poland revived the basic unit of local government – the municipality. The next stage of development of democratic structures at the local level began in 1998 when subregional level of counties (*poviats*) was re-established, as well as amalgamation of former 49 provinces (*voivodeships*) into 16 larger regions took place. These three tiers of self-government were granted relatively large autonomy in terms of competences though their dependency on central financing was strong. Currently, Poland is in the period of dynamic change. It has started with political and economic transformation and is influenced by processes of globalization and Europeanization. Cooperation with local stakeholders and involvement of citizens in political decision making has become a common practice in countries that underwent public management reforms in 1980's and 1990's. These countries, such as Denmark, United Kingdom, Sweden and Germany, assisted the Polish authorities during the implementation of Phare program in twinning projects related to institution building. In Poland, rules of the European Cohesion Policy contributed to dissemination of partnership practices at the central and local level.

The legal form of collaboration between self governments in Poland was widely presented by Ofiarska (2008). She revised the forms of collaboration between territories in Poland. She claims the advantage of the current legal solutions in Poland is their variety and flexibility on the other hand, these regulations are fairly general. The law should not rigidly categorize these issues, but in Poland the problem is the lack of collaborative culture among public officials and managers and low social and institutional trust (Szczepański et. al., 2008; Anders, 2011b; Anders, Rudolf, 2013).

On the other hand, according to the justification for the act on strengthening of civic participation in local government activities, on cooperation of municipalities, counties and provinces and on amendment to certain laws (the proposal of the regulation submitted by the President in 2011), the current rules inadequately incorporate participation of citizens in decision-making taking place in the bodies of local government units. Under the current legal status, local development is one of the tasks to be performed at the municipal level but the regulations do not oblige local government units to enact a comprehensive development strategy. They also do not contain provisions regarding this issue. At the same time, the issues of regional strategy development are highly regulated and impose certain obligations upon regional authorities. This omission at the local level is even more apparent when considering the fact that these various specific regulations require the adoption of detailed plans, i.e. local development plans for revitalization areas. The current activity of cities in involving citizens and institutional partners is primarily a consequence of good managerial practices that fit into the model of public governance. It should be emphasized that certain measures were undertaken to change the law and to persuade local authorities and their partners to collaborate with permanent residents of the territory. The legislative initiative of the President that was mentioned above has three dimensions: an increase in the share of residents involved in activities of the local government, strengthening of support for co-operation between municipalities, districts and provinces, as well as removing barriers to the development and functioning of local government units.

A package of regulations related to the European cohesion policy for 2014–2020 should further promote practices of cooperation in urban development. Draft regulations announced in October 2011 highlighted the role of urban areas in economic growth. According to the European Commission proposals, the EU Member States should devote a significant part of the national allocation of the European Regional Development Fund towards urban projects and build specific implementation structures that would include local authorities and their institutional partners. In Poland, a new urban policy regulation project was under discussion at the beginning of 2012. Creating conditions for effective, efficient management and partnership de-

development in urban areas, including in particular metropolitan areas, is one of the priorities in this proposal. It is aimed at creating institutional and legal conditions for the proper conduct of urban development policies at national, regional and local levels and an increase of the capacity of institutions responsible for urban development. Under the principle of multi-level governance, urban policy is addressed not only to public entities but also to the business community, local institutions, NGOs, representatives of local residents, in other words, to all partners whose activities are relevant for the achievement of its objectives. The urban policy creates appropriate instruments and mechanisms to facilitate and support a broad participation of local partners in urban development. It assumes not only the use of a stable framework for dialogue between governments of different levels but also a dialogue with social and economic partners.

Unfortunately, several studies indicate that the Polish self-governmental administration has a serious deficit of ability to collaborate (Kulesza, 2009). This applies to all its levels (commune, district or region). Officials lack the capacity and willingness to jointly solve local problems. The research done by Rudolf (2010) in Polish regions has proven the early stage of the collaboration orientation of both regional politicians and public managers. The results of the study have identified factors facilitating collaborative attitudes of the representatives of both sides of regional authorities, i.e. regional offices and their institutional stakeholders, as well as factors which constitute barriers. Implementing the long term education process targeted at both regional politicians and high level executives (public managers) would facilitate collaboration actions. These are keys for stimulating the economic development by exploring potential of relations between the metropolis and the region (Anders, Rudolf, 2013).

RESEARCH METHOD

The study objective was to compare readiness of the local authorities in the selected cities to adopt a collaborative approach in design and implementation of local development strategies. The focus was on activities aimed at increasing external attractiveness of the analyzed cities, i.e. potential to mobilize an inflow of tourists, investors and prospective students. Local entrepreneurs were also considered as an important target group since they build networks with potential investors and serve as job creators for graduates. The selection of localizations was based on typology developed by EUROREG in 2009 for delimitation of metropolitan areas in Poland. As a result, the following cities were chosen for comparisons:

- Metropolitan centers: Cracow, Lodz and Poznan;
- Regional centers – class A: Szczecin and Lublin;
- Regional centers – class B: Olsztyn, Kielce and Rzeszow.

Warsaw as the capital city was excluded from the comparison, based on its greater economic potential. The Triple city (Gdansk, Gdynia and Sopot), as well as Silesian Conurbation (based on the Central Statistic Office typology – 19 cities with Katowice as the main node) were not taken into account as it would require carrying out research in all cities being a part of the local center. Similarly, Torun and Bydgoszcz were excluded since in the Kujawsko-Pomorskie region there is a division of functions of the regional capital between Bydgoszcz – the seat of the centrally appointed voivode (governor) and Torun – the seat of the regional assembly and voivodeship marshal.

All the cities under examination are capital regions. The differentiating factors comprise: population, academic potential, cultural potential, external attractiveness, managerial functions and accessibility by air (Smętkowski et.al., 2009, p. 47)¹. These factors do not take into ac-

¹ Managerial functions were measured by the number of enterprises localized in the city that form economic networks extending the local dimension, academic potential was measured by the number of students and participation in the international

count important differences between cities within one group that relate to local GDP, the structure of production and employment or the city's image that influences external attractiveness. Poznan – the capital city of Wielkopolska is the second richest city in Poland with strong traditions of entrepreneurship. Cracow – the capital city of Małopolska can be characterized as a strong academic and tourism brand in a poor region, while Lodz – the centre of the Lodzkie region still faces problems of postindustrial decline and tries to develop a new identity of a city of creative industry. Nonetheless, the recent data regarding tourism attractiveness, FDI attractiveness, local entrepreneurship attractiveness and GDP confirm that delimitation proposed by EUROREG retrieves reliable results especially in the first group. There are differences between Szczecin and Lublin in terms of GDP and external attractiveness that would place Lublin in the class B (see: tables 4, 5, 6). Lublin is, however, one of the biggest regional centers in the Eastern part of Poland that is lagging behind in terms of economic development both at the national and European level. All the cities in the group B that were selected for the study are also located in Eastern voivodships. This approach enables to compare city cases differentiated on the basis of criteria of economic potential, size, external attractiveness and, last but not least, historical background. To illustrate it: between 1795 and 1918 Poznan was a city located in the Prussian partition thus influenced by the Prussian administrative culture, Lodz was in the Russian partition and Cracow in the Austrian partition. During the short break between 1807 and 1815, when the Duchy of Warsaw was established, these cities adopted the Napoleonic Code. Szczecin and Olsztyn became a part of Poland after II WW, Lublin, Kielce and Rzeszow were under the Russian partition until 1918. On the other hand, the multiplicity of influences on the Polish administrative culture makes it very difficult to clearly evaluate the impact of a specific tradition on the modern Polish administration.

Another problem is a local structure of power that might interfere with willingness to collaborate. The administrative and territorial reform of the country in 1998 introduced direct elections of mayors for a 4-year term in office. There are no limitations in the number of terms in office of the city mayor. Thus, in many municipalities, mayors are selected for the second and third term in office (i.e. Cracow) and it can be a proof of strong local legitimization. At the same time, the local policy regarding selection of local parliament members is an extension of national preferences, though after elections local coalitions overcome the traditional division and cooperation between the right and the center and even grand coalitions can be found (see table 7). Based on data of the National Electoral Commission, it was not possible to assume the level of willingness to cooperate between the executive and legislative power in the cities considered for the research with the exception of Lodz and Poznan where the city mayors faced opposition from the city council. In the remaining cities, local coalitions involved representatives of local movements that supported the governing mayors. In the third direct elections in 2010 only in three cities – Lodz, Lublin and Olsztyn – voters elected new mayors while in the rest of the cities mayors appointed in 2006 continued their activities also after 2010.

During the research process, differences in openness towards participation in the project occurred. Several cities asked for additional data regarding the scope of information to be gathered and that postponed field work. In general, metropolitan cities and cities with an implemented electronic system for circulation of correspondence acted faster in terms of cooperation with the researchers. The interviews took approximately 1 hour. The results presented below are based on the analysis of documents in 8 cities under examination and the analysis of 28 in-depth interviews carried out in Lodz, Poznan, Cracow, Kielce, Olsztyn, Szczecin, Lublin and Rzeszow. In each location, managers responsible for promotion, strategy, tourism, investor relations and entrepreneurship were key informants. Depending on the structure of the City Office, some functions were grouped together, i.e. promotion and tourism, strategy and investor

R&D projects, cultural potential was assessed based on the number of seats in cinemas, external attractiveness was measured by the amount of tourists staying overnight. For more data see: EUROREG 2009.

relations or entrepreneurship and investor relations. Only in some instances, there was a separate position in the City Office responsible for relations with Universities. Based on these structural differences, depending on the city, the researchers carried out between 3 and 5 interviews.

RESULTS

During data collection, special attention was given to the declared readiness of the authorities and managers to cooperate with external institutional partners within certain processes (attracting investors, tourism, students and creating facilities for entrepreneurs).

In general, the attitude towards governance as a collaborative process based on long term relationship management was positive. The interviewees were introduced to the study objective in terms of its orientation towards external customers of the city but in many cases they mentioned local inhabitants as the main target group – *“actually these groups are ca.30% of our all customers”* as one of the respondents stated. According to another participant of the study in Poznan, the orientation towards entrepreneurs was supported by the local identity anchored in entrepreneurial culture and entrepreneurial spirit, which was very vivid in the Wielkopolskie region.

The interviewees were asked questions regarding the scope of collaboration and actors that cooperate with local authorities. The following problems of cooperation were under examination:

- Cooperation concerning research and analysis with regard to selected target groups while designing local development policies and strategies;
- Practices of cooperation with stakeholders regarding implementation of these strategies;
- Attitude towards public participation in policy design and implementation;
- Attitude towards collaboration with stakeholders in policy design and implementation;
- Potential benefits and barriers for public participation;
- Potential benefits and barriers for collaboration with stakeholders;
- Attitude towards good governance indicators as defined by the Ministry of Regional Development in Poland: openness, participation, effectiveness and cohesion¹.

In all the cases, the interviewees gave examples of cooperation with social and market research companies while analyzing projects of local development policies. In several cities, local universities were also mentioned as valuable partners. City offices outsourced opinion surveys to monitor quality of services as perceived by local inhabitants. In the case of external customers, they gathered information based on cooperation with regional tourism organizations. Data on investors were obtained from consulting agencies that performed detailed studies. In one case, cooperation with other cities was mentioned as a method to gather data through study visits.

The following organizations were mentioned as valuable partners in strategy implementation: regional tourism organizations, chambers of commerce and other organizations representing business, special economic zones, universities, technoparks, central institutions such as the Polish Agency of Information and Foreign Investment and the Polish Agency of Entrepreneurship Development and regional authorities (Marshal's Office).

The interviewees provided examples of collaboration with partners, especially in the area of entrepreneurship policy, i.e. joint projects of training for start-up owners where consulting companies offered the program and staff, while the city office organized the venue and recruit-

¹ All these terms were briefly explained to the interviewees. While openness (transparency), participation and effectiveness do not pose interpretation problem, cohesion is understood as the ability to cooperate during design and implementation of public policies and high interfunctional coordination of public institutions.

ed participants. Another example was cooperation with the university to support local business with know-how and increased transfer of technology to SMEs. The university and the city-office co-operated in maintenance of a database of specific technological solutions and provided companies with information on their availability. In the area of the investors-related policy, the interviewees mentioned examples of collaboration with the central agency responsible for FDI. During meetings with potential investors, representatives of the city office are given opportunity to present a specific location to a foreign delegation. Tourism development policies were supported by regional tourism organizations with their knowledge potential regarding trends in the tourism market (Anders, Rudolf, 2012).

The interviewees had a more positive attitude towards collaboration with institutional stakeholders than towards public participation. They recognized the need for participation, especially representatives of departments responsible for design of local strategies, by stating that “public officials are not omniscient”, “we should not be in the position of people knowing better than local inhabitants what is good for them”, “it is good to compare our assumptions with social perception”. Public consultations allow to save time and public money since according to one of the respondents “we do not engage in activities that do not have local support, if we skip consultation and social discontent arises then we are forced to stop implementation of the project (...), consultations mean savings – you stop before serious resources were engaged”. On the other hand in all cities public officials state that participative governance extends the process of decision making. In this respect, participative governance is of greater use in the phase of analysis than implementation of developmental policies. Public officials also gave examples of public consultations that were dominated by those who had firm and negative attitude towards city office’s proposals, those who had no professional knowledge about the legal framework for self government activities and tried to enforce solutions that could not be performed on legal grounds and those who did not pay attention to the topic of consultations and tried to redirect the dispute towards another area. These profiles of representatives of inhabitants in consultative processes were unanimously indicated by the interviewees as a main barrier for conclusive results of public participation. The problem of unrealistic expectations on the part of citizens was also mentioned.

When asked about goodness of fit of public participation for the managerial processes in the city office, the respondents gave lower scores to participation than to other dimensions of good governance. Effectiveness was regarded as a key factor in public governance, as well as a cohesive approach. Cohesion as a feature of good governance covered also the ability to cooperate across departments within a public institution. In general, the interviewees seemed to perceive a deficit of internal collaboration; on the other hand they gave many examples of tools used to improve interfunctional coordination such as: regular interdepartmental meetings, exchange of information via e-mails, phone calls, participation in city assembly meetings. They also mentioned that internal collaboration depends on culture of management. In general, managers responsible for policies towards investors, tourists and entrepreneurs stated that they had full support from top management and could also function across formal divisions in city offices and their counterparts in other departments collaborated willingly. One of the respondents linked this to other departments’ awareness of the primary value of the policies aimed at local entrepreneurs in local development. Another stated that willingness to collaborate was also institutionalized by centralization of promotion activities when other departments had to consult their information campaigns with the promotion department.

As mentioned above, collaboration with institutional stakeholders was perceived as a good way to implement local development strategies. The respondents mentioned following benefits from collaboration in terms of local development:

- Access to information;
- Access to experienced professionals;
- Opportunity to learn new methods of doing things in a public organization;
- Increased time-effectiveness in strategy implementation;
- Access to financial resources of private partners via sponsoring and donations;
- Opportunity to do more with less by engaging partners with common interest;
- Opportunity to disseminate a positive image of the city office among partners.

One of the interviewees stated that “The organizations are needed (...) to generate ideas” and at the same time “the more devoted you are towards the idea, the greater your engagement”.

It was clear that the respondents had a wide perspective on collaboration and recognized its complex character where tangible benefits were accompanied by the political dimension of the process. It was obvious for them that stakeholders involved in local development strategies would like to see benefits from collaboration. Sometimes it was recognized as the main drawback of collaboration (“they approach us as a source of money”, “Some organizations try to treat the city instrumentally”, “Some people outside the city office do not accept that collaboration means also the sharing of responsibility”), sometimes as a feature of the process that can be managed by creating a sense of common interest and ownership of important social ideas on the part of private and social partners. One respondent stated that political issues might be a problem in collaboration between different tiers of government. The reality of relations between city and region was described in this way: “Cooperation follows sinusoidal pattern: there are good and bad days”. Legal rules were mentioned as the main barrier in cooperation with private partners. There is “No tradition of cooperation, imprecise law”. Also the perception of relations between public authorities and private enterprises by the public was perceived as a problem: “Collaboration with private business is difficult: the city cannot afford accusations of being involved in promotion of a specific company, accusations of corruption – it should be avoided at any costs”. Public bodies at the regional and local level are very sensitive to this problem and try to minimize risk of being perceived as corrupt. It is due to greater scrutiny of local media. Another factor contributing to limited practice of collaboration with private partners are regulations regarding public procurement, concession law and PPP law. Public Procurement Act was often mentioned as a regulation that inhibits managerial decisions. On the other hand, some of the interviewees state that it is not a problem of regulation but the problem of professionalism of public officials who prepare bidding procedures “if you really want to do something, you should try harder, there are methods to deal with Public Procurement Act, it only requires more knowledge and creativity”. This statement strongly underlies the role of managers’ attitudes in promotion of cross-sectoral collaboration at the local level.

As it was discussed earlier, modern understanding of marketing in scientific literature underlines significance of strategic vision, integrated thinking about an organization and its mission and strengthening of competitive advantage through building of partnership with important actors, collaboration in networks and supportive relations. In the public sector context, these relations fall into three categories: cooperation/partnership between public and public, cooperation/partnership between public and private and cooperation/partnership between public and non-profit. These relations not only make public organizations more open and externally driven but also increase their effectiveness and efficiency. Similar openness should be achieved by civic participation. A discussion about civic participation is beyond the scope of this paper. On the other hand, making prepositions

about city residents as relevant stakeholders of the city called for an analysis of opportunities for citizens to participate in local governance that emerge from strategic documents.

The following advantages of collaboration with institutional stakeholders in value creation for citizens were mentioned during interviews with senior managers (Anders, Rudolf, 2013):

- Effects of synergy (13);
- Access to know-how of the partner (9);
- Positive impact on organizational learning via transmission of knowledge and efficient procedures (7);
- Access to resources that positively influences cost-effectiveness of the public partner (7) (Anders, Rudolf, 2013).

Other positive effects of collaboration comprised:

- Access to the partner's organizational network that facilitates distribution of services and information from the public partner to relevant customers and general public.
- Lower legal risk understood as lower probability of a local administrative decision or regulation being subject to appeal. As long as partners were involved in the process of analysis and planning for a specific local policy, they became co-authors and developed a sense of ownership that reduced their "hostility" as one of the interviewees stated.
- Higher credibility through a halo effect induced by a partner with a good public image.
- Political support especially in relations with central government as far as the local – central policy interface is concerned (the infrastructural policy, the foreign investors' policy).
- Better promotion of the city. In this case, the effect was dependant on earlier activities regarding brand development. In those cities that have already created a clear vision on how the city should be perceived, cooperation with representatives of tourism industry, higher education institutions, entrepreneurs and foreign investors becomes also a theme used by units responsible for promotion (Anders, Rudolf, 2013).

The following barriers for collaboration with institutional stakeholders in value creation for the local community were mentioned during the interviews:

- Human factor related such as: organizational "selfishness" and concentrating on one's particular interest, negative bias with regards to the partner's intentions and capacities, political problems;
- Communication related such as: lack of knowledge on partners' internal procedures, inadequate knowledge of potential partners, communication barriers;
- Organizational such as: slower decision making processes, lack of time to develop partnership, frequent changes in employment in the partner's organization, different organizational structures;
- External factors induced by resource and legitimizer markets such as: lack of finance and legal barriers (Anders, Rudolf, 2013).

According to the concept of multiple markets proposed by Theodossin (1986), a non-profit organization has to perform strategic activities in four markets: primary (actual users or beneficiaries), secondary (those who can influence decision making processes of actual users), legitimizer (those who ensure due process of service delivery) and resource (those who allocate resources to the non-profit organization). In many instances, in the public sector context, the legitimizer and resource market are those which attract most of public managers' attention. Proper management of relations and an analysis of value delivered by a public organization could bring a proper equilibrium in serving multiple markets (Anders, Rudolf, 2013).

The interviewees were also asked to answer the question on how they understood a notion of good government. The following answers were given:

Good government means (in descending order):

- Performing in an efficient and effective way (mentioned by 16 interviewees);
- Meeting citizens' needs (mentioned by 11 interviewees);
- Exchanging ideas with stakeholders (mentioned by 9 interviewees);
- Being open and transparent (mentioned by 8 interviewees);
- Being professional (isolated answers, but if appeared there was a comment on obviousness of this dimension for a public organization);
- Steering local policies (isolated answers);
- Being an integrator for different organizations (isolated answers);
- Dialoguing with different stakeholders (isolated answers).

When asked about assessment of appropriateness of different tools used in public management for their institutions, public managers preferred measures increasing effectiveness, promoting internal collaboration and increasing knowledge about customer needs through market research over measures increasing openness, participation, assessment of users' satisfaction and collaboration with other organizations in service delivery (Table 1). Their attitudes stayed in conformance with the results of content analysis described above.

Table 1

Average goodness of fit for public managers (range 1–7)

Public management tool	
Market research of customer needs	6.38
Collaboration in service delivery with private and non- profit partners	6.04
Satisfaction surveys	5.92
Good governance values	
Participation	5.33
Cohesion (internal collaborative culture)	6.54
Openness	6.25
Effectiveness	6.52

Source: authors' own elaboration.

The key problem for this paper was to achieve understanding on how public managers understand the role of marketing for their organizations in the context of relations with relevant stakeholders. Marketing was seen as:

- Promotion and communication activities (18 answers);
- Building a positive image, brand management, reputation management (8 answers);
- Building proper relations with users (8 answers);
- Building proper relations with stakeholders (5 answers);
- Selling product/service (3 answers);
- Satisfying users' needs (3 answers);
- Market research of users' needs (3 answers);
- Acquiring new customers (1 answer);
- Creating new needs (1 answer).

At least four dimensions of marketing were evoked, i.e. marketing communication, relationship management, marketing research and service development. It should be noted that many interviewees felt uncomfortable about this question, claiming they were not proficient enough to make statements about the role of marketing in local policies.

CONCLUSIONS

In this paper, the researchers made an attempt to propose a new approach in the analysis of marketing relations from the city perspective. A theoretical development of marketing from product through service towards relation-based to value-based marketing offers a promising insight into the analysis of public sector organizations that operate in the multiple actors' environment. Differentiation between customers/users who are in the position to choose between different locations such as tourists, investors or prospective students and members of local community defined as shareholders is very useful for the analysis of market orientation of the city.

Senior managers in City Offices of 8 regional capitals in Poland are aware of the value that collaboration delivers to processes of service delivery. They present a pragmatic view of collaboration as a means of improving efficiency and effectiveness of their institutions. However, only in some instances, collaboration is seen as a method that leads to better results for service users and stakeholders. Although relationship management appears as a marketing dimension in 1/3 of interviews, there is still no shift in consciousness of public managers from service delivery through relationship management to stakeholder value management. Marketing is not seen as a strategic and integrating approach for a public organization. Also relationship management does not appear to be an important dimension of development strategies. In this context, processes of value creation for local stakeholders are not properly integrated. Public managers should develop more insight into multifaceted nature of marketing while currently they mostly share the perception of marketing as promotion. They should also pay more attention to building reputation of a public organization based on real values delivered to stakeholders. New methods promoting greater cohesion at all levels: organizational, policy building and interorganizational are required in order to utilize advantages of marketing orientation in local policies.

At this stage, it was not possible to draw conclusions for the three classes of cities that were subject to the research, as well as observe significant differences concerning market orientation of senior managers depending on the type of customer. It opens an area for further research based on the quantitative approach.

The results indicate that at the discourse level there are no important differences in approaches to collaboration and public governance and market segments that cities perceive as strategically important (Anders, Rudolf, 2012). The interviews have confirmed that cities are result-oriented and place much emphasis on effectiveness as an important value in public governance. Partnership and collaboration are treated instrumentally as a tool that increases effectiveness of local development policies. Theories on collaboration have been built especially on explanations of strategic decision making within organizations; less attention has been devoted to the human element in collaborative decisions (Gazley, 2008). Resource dependence theories have been especially prominent, with their ability to explain how a need to increase resources or reduce competition drives an organization's strategic decision to ally with another (O'Leary et. al., 2009, p. 8). The compared cities differ in terms of external attractiveness with Cracow being the only metropolis with positive net migration (tab. 4) and Cracow, Poznan, Lodz and Szczecin having the highest position in terms of tourism attractiveness, investment attractiveness and entrepreneurship. Lublin is a city located in the region where agriculture, farming and forestry are important sectors in the structure of em-

ployment (tab. 6). It indicates that resource dependency offers only a partial explanation to processes of collaboration. The results underline significance of human factor in collaboration. The conducted study comprised both cities with a strong socio-economic position such as Poznan, Cracow and Lodz, as well as the city being the regional center in class B – Kielce. In all the cases, public managers express a positive attitude towards collaboration, while having a realistic view on barriers and drawbacks of the processes of collaboration that took place in the city. While collaboration in the form of partnerships and networks seem to be good at strategy planning, document writing, research, data gathering and so on, delivery is harder (Goss, 2001). It could also be observed in the results since public managers responsible for the strategy design gave much more examples of collaboration than those involved in strategy implementation. Public consultations used in the phase of analysis and planning are compulsory for regional authorities and also in the process of the EU cofinanced strategies design. City authorities also feel obliged to carry out consultations while creating strategies of local development and urban spatial planning documents. Collaboration here is mainly through subcontracting of research activities and organization of public participation processes (workshops, panel discussions, collecting of public proposals on line) with the support of specialized private agencies and non-governmental organizations. Public managers dealing with strategies aimed at external target groups provided many examples of collaborative ventures but had more reserved opinions on processes of public consultation. The main factor contributing to this attitude was the problem of time that had to be spent on consultation and legal barriers for implementation of some proposals from non-public partners. It is worth noting that against general preconceived notions on negative attitudes towards collaboration on the part of Polish public institutions, local public managers quoted many examples of positive results of cooperation both in terms of results of specific projects and in terms of influencing organizational culture and an organization's image. In order to build upon this, further studies are required to design benchmarking standards for collaboration in local development strategies.

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THEMED FACILITIES IN POLAND AS A RESPONSE TO THE ECONOMIC CRISIS AT THE BEGINNING OF THE 21ST CENTURY

*Piotr Rzeńca*¹

INTRODUCTION

The economic crisis and the turbulence in the financial markets shook a multitude of national economies in the first decade of the 21st century affecting, to a smaller or larger extent, even the highly developed countries on all the continents. The economic models of national and global economies functioning to date underwent a considerable redefinition, the problems of financing self-government units on different levels deepen, at the same time contributing to hindering the social-economic development or even to decreasing the standard of living of the inhabitants of many regions all over the world. The need for looking for additional or completely new sources of income of the citizens, contributed to the fact that regional and local development became an important factor. It was referred to the theory of territory development, trying to put into practice the ideas of territorialization or globalization of the business activity, expressed in searching for and using unique assets of the areas. One of the expressions of such activities is the themed space, understood as a conscious giving to the space some architectural forms referring to history, events or figures, drawing from the specific resources of the particular area. Theming introduced to the human being environment a lot of different forms of space management. Various facilities starting with the huge Walt Disney-type theme parks and ending with micro-scale facilities of a size of a farmstead are the expressions of theming. The subject of this compilation is the characterization and diversity of the Polish examples of exhibitions and theme parks, and an attempt to respond to the questions if these facilities, functioning among others as a tourist attraction are the expression of a struggle against the economic stagnation, retaining the economic status of the inhabitants and at the same time an evidence for the creativity of a human being and human assets.

THE THEMED SPACE PHENOMENON

The definition of theming was taken from the American term *theming*, which at first concerned amusement parks and theme parks stylized on fairylands. In the nineties of the 20th century the term was used with reference to transformations of public space (Lorens, 2006). R.J. Gangewere (1999) defines *theming* as a phenomenon of creating places that are a kind of performance by the means of a set of some qualities and values due to which the specific places are standing out and tourist attractive².

P. Lorens (2006) defines theming as “a conscious and intentional giving to the particular space architectural forms referring to the past times or other civilizations, which may be related to creating an urban performance targeted at the bulk consumer”. The themed space is there-

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² Gangewere R.J., Theme City: Imagining Pittsburgh, http://carnegiemuseums.org/cmag/bk_issue/1999/sepoct/feat6.html; 15.04.2012).

fore connected with creating public space characterized with a specific urban architectural form and also offering a certain story which grabs attention and interest.

The themed space results basically from its commercialization and remains in close relation with the commonly observed limitation of the significance of traditional public space. As the causes of this phenomenon one can enumerate changes in social ecology and increasing complexity of the cities, suburbs development and their atomized character, the anxiety against delinquency, technological advancement, changes in social-demographical structure and employment structure. This phenomenon is reflected in a variety of forms: rating from the interiors of shopping centers through the restored historical districts to the typical theme parks (Lorens, 2005).

According to Poczubut (2013) as theme parks one considers places, most frequently of family entertainment of a single leading profile. They become more and more often a popular way of spending free time. They are associated with new, mostly season workplaces (depending on the climate conditions of the region and the profile of a theme park) and with financial benefits of their organizers that is a new form of business.

Currently, a fast development of the idea of theme parks that at the same time start to have more and more varied forms is observed. New types of entertainment-commercial-educational hybrids are set up. Kruczek (2012) mentions the following forms “shopper-tainment” – a combination of entertainment and trade, “eater-tainment” – a combination of entertainment and gastronomy, including the foundation theme restaurants and “edu-tainment” – a combination of entertainment and education. The latter combination is particularly popular in Poland. In the juxtaposition suggested by Kruczek, there is a lack of facilities combining entertainment with science, however, it can be substantiated with the fact that the majority of specialists do not consider science and education centers (especially the scientific for the general public ones) as the themed space. However, it can be assumed that if “science” is not in this case the “theme”, some narrower issues presented may already become such a “leitmotif”.

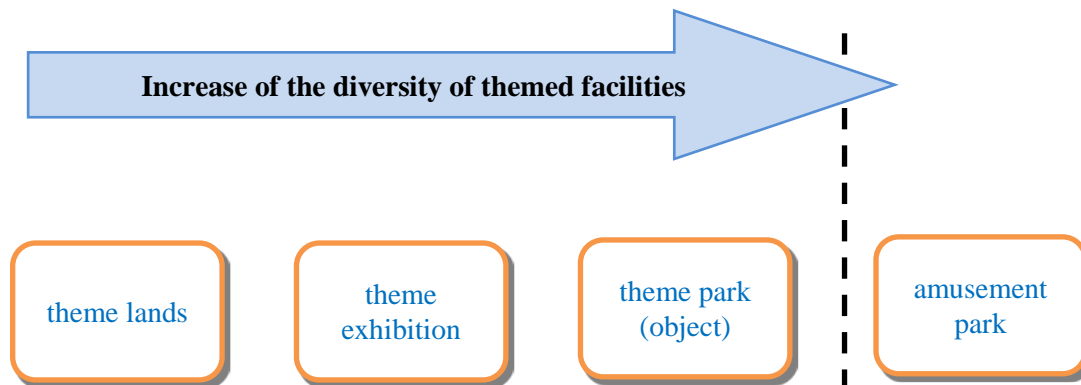
Assuming the narrow definition suggested by Alexangrova and Sedinkina (2011), among the themed facilities *sensu stricto*¹ one can enumerate the following parks standing out with a precisely defined theme or history miniature parks, dinosaur parks (Jurassic parks), parks of fairytale creatures, historical theme parks, and also western cities. Theme villages and the so called Indian villages are similar with their features to the former ones. Expanding the definition scope of theme parks to their *quasi*-forms one can rate science centers, entertainment-leisure facilities that are called amusement parks (funfairs, luna-parks, themed attractions), aqua parks and ropes courses. However, they are typical leisure centers that can be based on a „leitmotif” – in case of aqua parks and ropes courses it came down to the appropriate usage of water and technical installations that enable moving between the secured stands placed on a certain altitude above the ground.

As facilities having the minor significance in theming one may indicate theme lands, which do not function as the autonomous bodies or institutions. They are separate fragments of larger theme layouts emphasizing the diversification of the main theme (Figure 1).

For instance, in the Whale Park, located in Rewal on the coast of the Baltic Sea (Zachodniopomorskie voivodeship), which is a typical theme exhibition with about 100 models of fishes and sea mammals in their original size, three theme lands may be enumerated: Ocean giants, sea monsters and a pirate settlement. On the other hand, as theme parks one can acknowledge those theme exhibitions that are developed on a larger area and at least a part of the exhibition is in the open space, and above all they consist of one or several theme zones and legible in space supplementing zones – leisure and buffer ones; at the same time they are not the fragments of the typical museum exhibitions or open-air ethnographic museum facilities. The leisure areas provide fuel for fun to the visitors. The buffer zones are given a form of space that

¹ The approach is based on a range of characteristics separating theme parks from the other types of parks and all the other typically leisure and entertainment facilities. According to this approach these are “artificially created cognitive-entertainment parks, of which all structures are connected by a common theme.”

has a commercial function with shops, coffee houses and souvenir shops (Alexandrova, Sedinkina, 2011). Several theme parks connected by the entertainment and leisure areas are similar in their character to an amusement park. An alternative term may be *a theme amusement park*. According to Kowalczyk and Derek (2010), who draw from the experiences of American authors, amusement parks are one of the main forms of themed environments (Figure 2).



Source: own work

Fig. 1. The gradation of the development level of the themed space (on the example of Polish themed facilities)



Source: Kowalczyk A., Derek M., Zogospodarowanie turystyczne, Wyd. Naukowe PWN, Warszawa 2010.

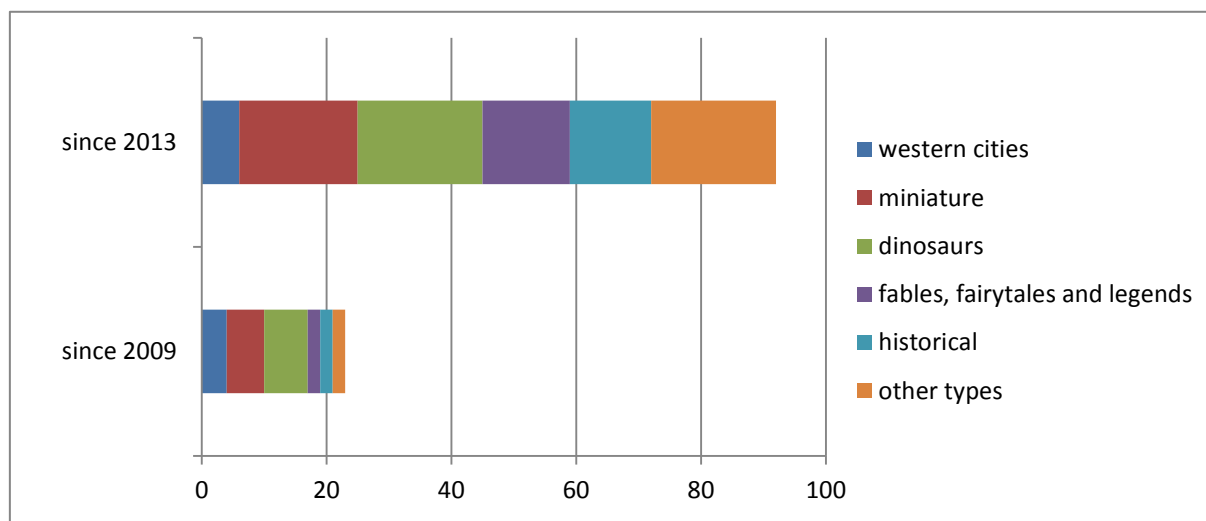
Fig. 2. Diversification of themed environments

It is worth paying attention to the fact that not all amusement parks (as well as luna-parks, funfairs, aqua parks and ropes parks) have to be themed facilities, although the first theme park, which is said to be Disneyland in Anaheim (California, USA) in 1955, was given the form of an amusement park. An inspiration for the creators of the park were the motifs from Walt Disney cartoons, embedded in a reality imitating artificially created landscape of a traditional American town with a railway station and the main street¹. The constant evolution of the themed facilities causes that the discussion over defining and classifying them will last for a long time.

THE DEVELOPMENT AND DIVERSIFICATION OF THE THEMED FACILITIES IN POLAND

Theme parks in Poland are diversified to a great extent despite their short history. The first three – The Miniature Open-air Ethnographic Museum in Pobiedziska (Wielkopolskie voivodeship); Western City in Karpacz (Dolnośląskie voivodeship) and Theme Gardens Hortulus Dobrzyca (Zachodniopomorskie voivodeship) were founded in 1995–1999 (initial period), the subsequent two (Lower Silesia Monuments Miniature Park in Kowary, Silesian voivodeship; JuraPark in Bałtowo, Świętokrzyskie voivodeship) in the successive 5 years (the so called forerunner period) (Rzeńca 2012).

Presently, we are observing a fast development of theme parks in Poland (Figure 3). The dynamics and scope of the phenomenon are enormous. One can venture a statement that the scale of this process does not have an equivalent in other regions in the world. In 2009 there were 24 themed exhibitions and four years later there were noted down over 90 of them located in 70 themed facilities, having a representative in every region in Poland². In five places there are two theme parks each (Table 1).



Source: own work

Fig. 3. The dynamics of the themed exhibitions development in Poland

¹ Economics Research Associates (ERA) defines amusement parks as „a public attraction including roller coasters and/or events in the entertainment environment, which offers to their visitors a ticket of a fixed price and attracts at least 500 thousand of visitors annually.” (TEA/ERA, 2006).

² Adding theme villages (according to various estimates about 70–80 locations) and Indian villages (over 30 locations) the total number of facilities may attain even 200.

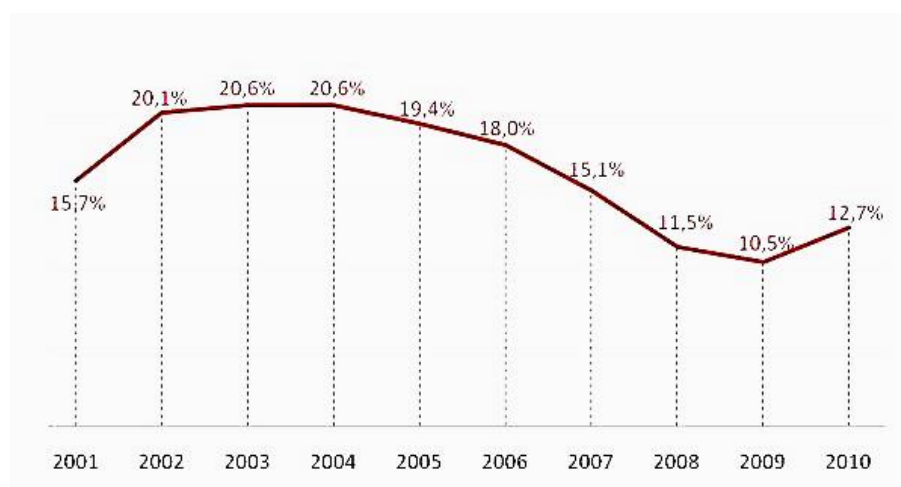
An abrupt because almost quadruple (!) increase in the number of themed exhibitions which started in 2010, undoubtedly has been connected with the economic slowdown in the country and has been correlated with the increase of the unemployment rate since 2009 (Figure 4).

Table 1

Exhibitions and themed facilities in Poland according to voivodeships in 2013

Voivodeship	Number of locations	Themed facilities		Number of themed exhibitions
		total	multi-threaded / multi-themed facilities	
Dolnośląskie	6	8		8
Kujawsko-pomorskie	5	5	2	10
Lubelskie	2	2		2
Lubuskie	1	1		1
Łódzkie	2	2	2	4
Małopolskie	3	4	2	10
Mazowieckie	2	2	1	3
Opolskie	2	2		2
Podkarpackie	5	6		6
Podlaskie	2	2		2
Pomorskie	10	10	1	11
Śląskie	9	9	3	12
Świętokrzyskie	3	4	1	5
Warmińsko-mazurskie	2	2	1	4
Wielkopolskie	5	5	1	6
Zachodniopomorskie	6	6		6
Total	65	70	14	92

Source: own work; current data: 13.12.2013



Source: own work on the basis of Central Statistical Office data

Fig. 4. Unemployment rate in Poland in 2001–2010

The lack of workplaces particularly severe in rural areas and in small towns encouraged the inhabitants to look for alternative sources of income. Almost $\frac{3}{4}$ (71%) of Polish themed facilities *sensu stricto* were founded on such areas, on the other hand in medium-size towns (20–50 thousand inhabitants) and big cities (over 50 thousand inhabitants) there were respectively 10% and 19%¹.

A great significance had the possibilities of obtaining European Union funds dedicated to supporting new forms of enterprises on the marginalized areas. On the other hand, the multiplicity and continuous evolution of the themed space forms show clearly the creativity of the society; although pretty distinct is the multiple usage of the well-tried themes (e.g. dinosaurs).

Some presently developed theme parks start to have a form of characteristic hybrids. This phenomenon is seen in the agglomeration of exhibitions of various leitmotifs. There have already been 14 such agglomerates (20% themed facilities), connected with each other by a close neighbourhood, sometimes also connected on an institutional-administrative level, most frequently by a common proprietor or management institution. Adding new more and more exciting and technologically advanced attractions enables to retain attendance.

Among the 92 exhibitions (Table 1), mostly founded after 2004 (74%), dominate model and mock-ups parks (55%) – of miniature structures (miniature parks), dinosaurs, insects and other animals (Figures 5, 6). The greatest part plays the miniature parks (20 facilities) and dinosaur parks (19 facilities), a slightly smaller part play fable, fairytale and legend parks (14 facilities) and historical parks (13 facilities). The size of the area fluctuates around 0.5 up to 50 ha (Rzeńca, 2012). Among the smallest ones, miniature parks (e.g. Mikrokosmos Ujazd) lead the way; the largest are represented by the Jurassic parks (Jurapark Krasiejów; Jurapark Bałtów). The proprietors of the facilities are private persons, associations, foundations and local government units, supported in their activities by the Local Action Groups² and Village Renovation Groups³.

Theme parks are very popular in Poland, very often winning the competition for the visitor with the most interesting museums. The Centre for Education and Regional Promotion in Szymbark⁴ (Pomorskie voivodeship) had highest attendance reaching 600 thousand of visitors, slightly fewer people visited Jurapark in Bałtów (Świętokrzyskie voivodeship) expanded of among others winter sports station.

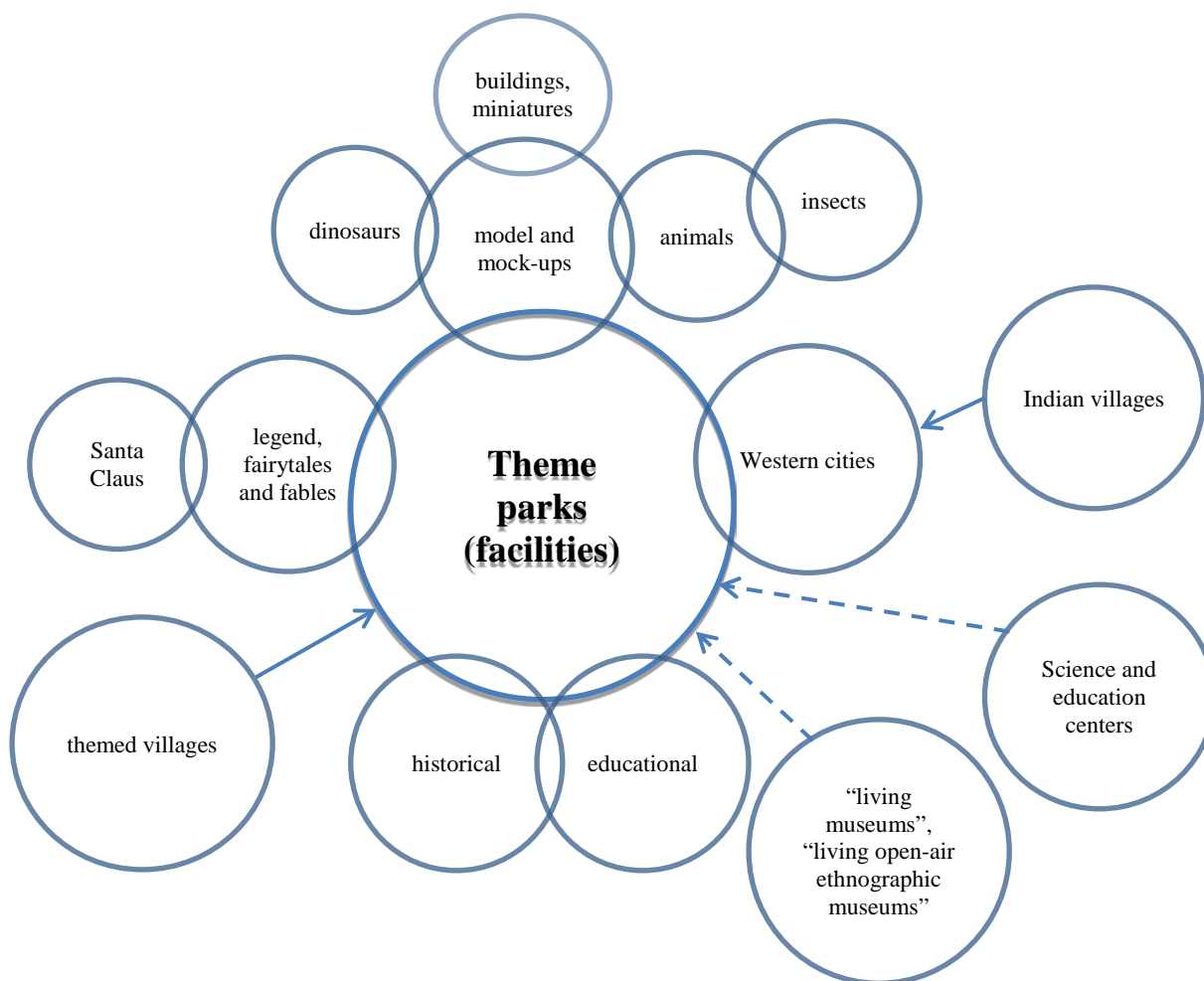
Assuming that the world amusement parks consist of several themed facilities connected by entertainment zones, then from Polish facilities one can rate to this group JuraPark in Bałtów, MegaPark in Grudziądz (kujawsko-pomorskie voivodeship), and in the recent years Zatorland (Zator, małopolskie voivodeship) and two facilities in the nearby Inwałd (Dinolandia and Inwałd Park, małopolskie voivodeship), which are at the same time an example of a very interesting phenomenon of creating new exhibitions nearby or within the borders of already existing parks. The success of these undertakings encouraged to use the popularity and retain the high attendance.

¹ Calculations on the basis of the data comprised in J. Poczubut (2012) work.

² Lokalna Grupa Działania (LGD); ang. Local Action Group (LAG).

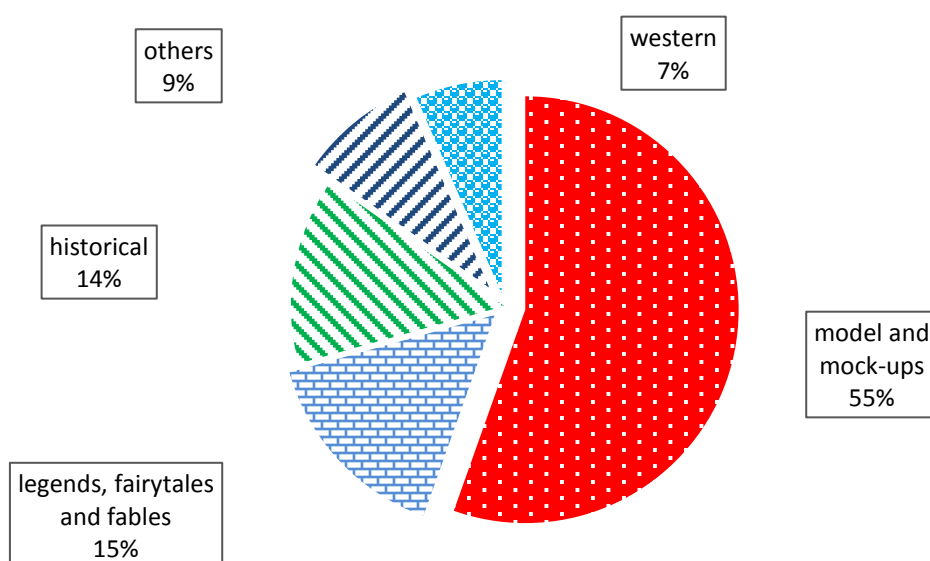
³ Grupa Odnowy Wsi (GOW); ang. Village Renovation Groups (VRG).

⁴ The Center for Education and Regional Promotion in Szymbark constitutes a conglomerate of various exhibitions presenting the general usage of wood in human's life. In the collection there is among others the longest board in the world or the so called Upside-down House.



Source: own work

Fig. 5. Diversity of the themed facilities forms in Poland



Source: own work

Fig. 6. Themed exhibition structure in Poland in 2013



THEMED FACILITIES AND TERRITORY DEVELOPMENT

In the term territory, developed recently in economics, one includes the concept of organization, politics, economics and society, in which the present dimension is historical, ideological, emotional or even imaginary. Territory is a historical structure which through the specific development was equipped with its own technical and human potential (Jewtuchowicz, 2005).

An important quality of the local development is its “territoriality” i.e. that it is always connected with a specific geographical, economic and social space and its resources. Territoriality, in an easy way, creates favourable conditions for the themed space – since “themes” used for the need of themed facilities development, stemming from the history, culture, folklore, beliefs and other cultural aspects of the society of a specific area constitute the specific regional resources. They contribute to the uniqueness of territories, although at the same time, the very existence of a specific theme potential is not the condition sufficient for the development, although it gives such opportunities. Local governments try to identify the mentioned resources, seeing in them an opportunity for the development of innovative ideas and local enterprising. Thus, the activity of themed facilities becomes part of the human resources development, building the regional innovation system and forming the information society (Rzeńca, 2012). Due to the activity of a themed facility based on synergy, the local and regional touristic attractiveness, influencing the development of the cultural tourism, is raised on a higher level.

Equating themed exhibitions with new workplaces and financial benefits for their organizers being a new form of business, have recently become a cause of almost “mass” foundation of theme parks in Poland (Poczobut, 2013). Themed facilities appeared to be a significant element in local policy and it is the done thing to have a theme attraction in their areas. Their relocation into a different place, despite the increase in work effort and financial means, does not guarantee the desired effect and success.

THE SCOPE AND WAYS OF USING THE SPECIFIC RESOURCES IN TERRITORY DEVELOPMENT

Theme accomplishment in most cases can be assigned to three groups:

1) Projects connected with local tradition and customs and culinary heritage and cultural territory preserving the natural and landscapes values, aimed at popularization of the characteristic existing qualities of the region. The priority is the usage of specific values in a relatively pure form – the best example is The European Tale Centre organized in Pacanów that is the destination place of Matolek the Billy-Goat, a cult character of one of the first Polish cartoons for children.

2) Projects that may be approved locally but in which the local resources are not considered to be the most important. It may constitute a casual reason for the created themed space. Usually, universal ideas connected with sport, science or entertainment are used and due to this fact may be carried out in almost every environment.

3) Projects implementing completely new, up to this point foreign to the region forms and activities contradicting the local standards. Unfortunately, among the examples one can indicate culturally foreign in Poland western cities and Indian villages and also dinosaurs’ parks, which are frequently set up in places completely not connected with the supposed areas of the occurrence or life traces of these prehistoric animals (Rzeńca, 2012).

There are two paths leading to the usage of potential, increasing the touristic attractiveness and the development of cultural tourism in the region. The first of them is based on the usage of the resources already existing in the particular area e.g. historic buildings, touristic infrastructure; the other on the contrary assumes creating a definite touristic attraction from scratch. The first method is seemingly easier to be accomplished because at the beginning it does not require con-

siderable financial outlays. The further functioning of the attraction requires intense promotion, and this does not guarantee that in the neighbouring regions there will be no similar in character and scope resources. In such a situation, the region loses its trump uniqueness and its competitiveness in the struggle for potential visitors is worsens. The increase of the significance of such an area is capital intensive and first of all it requires a lot of investments stretched over a long period of time. Creating touristic attractions from scratch, especially themed exhibitions is connected with the necessity of coming up with an original idea which then has to be worked out in details and successively developed. Implementing the idea in reality from scratch is capital intensive, however the functioning of so created themed attraction is easier because in the neighbourhood usually there is no "place" for creating a competitive facility. It is worth noticing that with the mobilization of local society the effect may be quite fast¹ and the satisfaction from the accomplishment of the passion immeasurable. The project may be modified during the accomplishment by the successive monitoring of the popularity of the undertaking among the visitors. The observation of the development of "one's own child" brings a great satisfaction to the organizers and stimulates to the greater involvement in the project works.

CONCLUSIONS

The present themed space appears as a multi-aspect factor of the local society activation, stimulating private, social and self-governmental initiatives, due to which it becomes a strategic means for looking for the new ways of the development and solving social, economic and demographic problems. Local governments and inhabitants more and more often create themed exhibitions, fighting in such a way with financial problems, unemployment, and social expulsion or accomplishing their own passions. The phenomenon of the themed space of an extraordinary dynamics and diversified final effects proves the creativity of the society. Searching for the themes resulting from the specific resources of local environments puts into practice the ideas of the territory development; however, not always the themed facilities are "thematically" harmonious with its resources.

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¹ According to Idziak (2005) an average period necessary for giving an appropriate form to a theme village takes 4 years.

E-TOURISM AS AN IMPACT ON A REGIONAL DEVELOPMENT

*Beata Gontar*¹

Tourism is an important part of the internal market of the European Communities and has a significant positive impact on economic growth and employment in Europe. The author is interested in the development of e-tourism in Poland. Tourism and e-tourism influence the regional development. The aim of ICT is to increase the attractiveness of the tourism area and promote the region. One of the ways to check the place of tourism and e-tourism is to analyze the documents of regional development. They indicate the directions of regional development and the region priorities and specify the main directions of future activities in the region in compliance with the requirements set by national policy of regional development with a respect of European Commission documents. The main objective of the paper is to explore the regional development strategies and present examples of e-tourism projects which have been implemented in Poland. The methodology used in the article, include the issue analysis, desktop study and case studies.

INTRODUCTION

Problem of the research. Tourism is one of the most important industries influencing the region wealth. The innovative ICT applications have become important in tourism industry. The aim of ICT in tourism is to increase the attractiveness of the tourism area particularly with regard to younger visitors. Such applications can be used to give access to cultural knowledge and offerings of cultural institutions, as well as for the preparation of tourist information along Polish cultural routes. The focus lies primarily on ICT tools for orientation and navigation of visitors in cultural routes (open street map, GPS), virtual experience of history through city guides (smartphone applications), as well as creating a community around tourist attractions in social media. Taking into account world experience and projects, it is worth checking out whether e-tourism in Poland is in a mainstream, weather there are such initiatives in Poland and such applications exists in Polish reality.

The object of the research. The paper explores the regional development strategies and examples of e-tourism projects which were introduced at the Polish tourism market during last years.

The goal of the research is to identify ICT innovations implemented in the cities and regions used by tourists.

The objectives of the article are as follows:

- to discuss the tourism policy in Poland and Europe;
- to bring recognition to tourism as one of the most important sectors of the economy – tourism as a priority (sustainable development and job creation);
- to review development strategy documents and point out their interest in e-tourism idea;
- to identify and disseminate best practices concerning innovation and ICT applications in tourism industry;
- to present some case studies of using ICT innovations in tourism in Poland.

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Methods of the research, used in the article, include the issue analysis, desktop study (review of academic papers, policy statements, regional development strategy documents, and current projects initiatives), case studies, and state of art of Polish e-tourism development concerning regional policy.

Relevance of the research: Smart, sustainable and inclusive regional growth should include tourism industry. In smart era e-tourism takes over many of the tasks carried out by traditional tourism at the same time offering new opportunities. The research of e-tourism is important from different points of view, also taking into account the development of the regions. This may contribute to the emergence of new regional policy instruments.

THE ROLE OF TOURISM

Tourism is a part of the internal market of the European Communities and has a significant positive impact on economic growth and employment in Europe, but it is not a subject of a common policy. The Lisbon Treaty has extended the Union's competences in the field of tourism. In accordance with this Treaty, European Union has competence to support the efforts of Member States in the tourism sector, in particular by promoting the competitiveness of Union undertakings in that sector and the creation of specific complementary measures to the end in the ordinary legislative procedure, excluding any harmonization of the laws of the Member States. The activities carried out in the area of tourism are designed to achieve economic objectives of the Community, which are included in "Europe 2020 Strategy for Smart, Sustainable and Inclusive Growth" (The smart and sustainable development is one of the objectives in coming programming period 2014–2020). The document indicated the need to increase the competitiveness of European tourism. The proposals to do that are detailed in a Communication of the European Commission from 2010 "Europe – the most popular tourist destination of the world – a new political framework for tourism in Europe" [15]. Continuous development of: mobile technology, the increasing role of internet sales, group buying portals, increase the number of so-called dynamic packages created independently by clients (packages using the website and relevant links to make reservation: hotels, airlines, etc.) and the use of online tools for marketing and communications, are just some of the changes in the area of new technologies. The period 2007–2011 is significant in the activities of the Polish Tourist Organization. There were created some programs to support the development of tourism products and promoting Poland as a tourism destination. These implementations were based on the structural funds. Implemented promotional campaigns directed to foreign markets and the domestic market as well, like: "Let's Promote Poland Together", a campaign associated with the UEFA European Football Championship EURO 2012™ or due to the world plebiscite "New 7 Wonders" (since 2009), in which there were two Polish candidates: the Mazury Lakes and the Białowiecki Forest [1].

It is beyond doubt that tourism is an engine of economy development of the region. One of the aims of local authorities is to identify the sites of tourism and its development issues in their strategies at the local level. It is necessary to support tourism creating efficient infrastructure in areas such as transport, security and accommodation. Increasingly important are a development of tourist information system and the use of ICT solutions, such as audio guides or tourist navigation systems. Mentioned above, the strategy of the European Union called Europe 2020 [6], defines that *smart growth supports the creation of new products and services, growth and employment of the area*. Sustainable development of the society requires investments in ICT infrastructure, implementation of educational programs, but also developing the wide range of e-services, like e-tourism services. Meeting these challenges can be reached through the integration of environmental, economic and social policies.

In order to attract tourists to the country/region, tourism potential should be presented in a professional manner by a well-organized, promoted tourist product. It is a source of economic prosperity for several different areas of management, which are involved in the organization and servicing of tourists. Tourism provides employment in hotels, travel agencies, museums, concerts, restaurants, in recreation, in health resorts, creating specialties not found in other industries, such as pilots tours, or guides. Economic development through tourism is particularly evident in regions with values and tourist attractions. The tourism policy of the European Union places great emphasis on regional development. The aim of regional policy is to increase the economic and social cohesion in the EU and the importance of tourism as pillar of economic source of state revenue, an element for solving economic problems.

THE ROLE OF TOURISM IN A REGIONAL DEVELOPMENT

Tourism generates revenue used to accelerate the development of the region. In 2012, Poland was visited by 14.8 million tourists, and it increased over the previous year by 11% [4]. In the coming years the growth is expected to be continued.

Table 1

Tourists visited Poland in recent years and expenses on tourism in regions

	2010	2011	2012
Number of tourist visited Poland	12.470 (+5%)	13.350 (+7%)	14.840 (+11%)
Expenses of local governments on tourism	720.628.428	801.118.920	646.676.896

Source: [1], [2], [12]

Tourism as a sector of the economy positively influences the socio-economic development of the region and also stimulates a participation in EU projects. The expenses in regions on tourism development (2007–2011) dynamically increased. It was due to local interest in tourism sector, perception of opportunity for the development of the region and also possibilities of co-financing by the EU funds. The process of intensive co-operation with local and regional tourism organizations, tourism development, tourism product development and the introduction of promotional strategies, there were the ideas realized in 2007–2011 years. In 2010 and 2011 the expenses have increased compared to previous years and in 2011 amounted to 801 million zlotys. In 2012, there was a significant fall to the level of 646 million zlotys (19%). This decline in tourism spending was due to the completion of capital expenditure in connection with Polish preparations for the UEFA European Football Championship EURO 2012. In 2007–2011, there were implemented a number of new investment projects (mostly concerning infrastructure) in tourism at the local government level. It is worth to underline that in the EU financial perspective 2007–2013, all regions have recognized the development of tourism as an important part of their development – tourism as a priority can be found in all the Regional Operational Programmes [1, 2].

DEVELOPMENT STRATEGIES

Tourism in recent years is widely seen as an important factor for regional development. This is due to the dynamic growth of the number of tourists, changes on the demand side and the supply side. Countries and regions are attempting to plan the development of modern tourism. Made in the article is an overview of selected planning documents, mainly regional like National Development Strategy which gives guidelines for National Strategy of Regional Development 2010–2020. The document, which sets out the policy of local authorities, is a regional development strategy that contains the concept of long-term development of the region. These strategies are documents that try to extend the scope of the community problems of the region. They specify the main directions of future activities and possibility of region development, in compliance with the requirements set by EU institutions and documents, and also according to National Development Strategy. The objective of the strategy is to set priorities and directions of development in the coming years, but also an indication of the strengths and weaknesses of the region (most often in the form of the SWOT analysis) and the problems that need to be taken into account in the implementation of its plans, projects and the way of their financing and estimating of their implementation.

In the paper, the author analyzed the strategy documents and pointed the place of e-tourism development projects. The results revealed that each region has natural or cultural potential to develop tourism and the importance to invest and develop this branch is taken into account by local authorities. Regions, which already benefit from tourism, intend to maintain their leader position by planning new investments (eg. new hotels, camping places). Voivodeships (regions), where the tourism services are not at satisfactory level, plan some investments in the development of tourism products and brands, expanding the existing services (it especially concerns accommodation). The analysis shows that only two documents contain plans of supporting tourism by ICT tools – Lubuskie (LB) and Świętokrzyskie (SW). In next five regions, e-services (including administration, which may be linked with the development of e-tourism) will be developed – Mazowieckie (MA), Opolskie (OP), Śląskie (SL), Wielkopolskie (WP) and Zachodniopomorskie (ZP). Although there are initiatives undertaken by governments of other provinces (eg. Mazowieckie – I-SPEED program [14], Małopolskie – Digital Library and Virtual Museums of Małopolskie [4]), they are not mentioned as strategic for the region and were not included in the documents. Others, such as business development (including e-business), expanding telecommunication networks, increase the number of hot spots, can be the result of implementation of the European Union strategy (to increase the number of e-services in Poland) and the Informatization Plan till 2015 [7, 9, 16].

International research firm Synovate prepared a questionnaire about attractiveness of Polish regions and cities. 37% surveyed responded that Pomorskie voivodeship is the most attractive for tourists. Concerning the cities, Kraków (Małopolskie) is the leader – it was indicated by 60% of respondents. Gdańsk (Pomorskie) took second place in the ranking with 29%. Above analyses shown that these two regions (Małopolskie and Pomorskie) are not interested in investments in e-tourism, but probably it is a result of their high ranking positions [3, 18].

E-TOURISM

ICT has always played an important role for the competitiveness of tourism organizations and destination. E-tourism is most often connected with the purchase of travel services. The first information systems were introduced in the late 80s and the internet solutions in the late 90s of XX century [5]. Nowadays, the internet and ICTs let to facilitate cooperation between suppliers and buyers all around the world. ICTs gives consumers possibility to identify, customize and buy products and supports the tourism industry in offering tools for developing and marketing offerings around world. The concept of e-tourism is much broader and includes all the applications and devices applied in tourism, such as audio guides, mobile travel guides, electronic cards in museums, the information for tourists, information systems, virtual museums and others. The “e-tourism” means the use of internet and ICT in all the processes related to tourism. That means the tourism activities in conduct, promotion of tourist product, sale of services, exploring and navigating travel destinations, gather information, book a flight or room, and staying in the chosen place and visit it [2, 10].

Nowadays, tourism is facing challenges connected with the development of new technologies, due to increasing competition in the use of innovative methods and techniques, technology, and increasing customer expectations for quality of service. Tourists are interested in new forms of communication (voice, images, smells, and their own experience). That is why more and more popular among others interactive museums, allowing for touching and experiencing the exhibits, tasting the local cuisine while exploring a specific region, workshops replacing visiting the folklore exposition. Global trends change with the popular 3S (sea, sun and sand) on 3E (entertainment, education, excitement). The tourism guides have to use innovative forms such as: urban games, explore fiction (like shows – pretending a fictional or historical figures), questing (with puzzles), directed adventures (as a train ride with kidnapping of the group members, finished by a joint party), activation of tourists during the tour (tasks, competition). Another challenge facing service providers in the tourism industry, including tour guides and tour leaders, is the need to meet the growing demand of foreign tourists in the use of different foreign languages. Thanks to the technology development some of these challenges can be met. Each smartphone or other portable device owner with internet access will be able to quickly and easily get additional information about tourist attractions.

Recent research “Internet users in 2013”, conducted by the Foundation for Public Opinion Research Center presents interesting information on how people use the internet in Poland. At least once a week, 60% of Poles aged 18–24 years use internet. This result is higher by 4% compared to May 2012. For surfing in the Web online, Poles spend on average 11 hours per week. One of the most popular activities is sending/receiving emails (51%) and searching information (48%). Taking into account only the use of internet-information searching is 98%. The number of mobile devices increased. Connecting with using internet mobile devices was declared by 73% of respondents giving a score of 9% higher than the previous year and 23% higher than in 2010.

Despite of a lack of information in the development strategies, there are many initiatives of the e-tourism development in Poland. This applies mainly to the cities. Each year, an increasing number of cities tries to meets the needs of tourists and encourages them to visit. For this purpose, in their promotional campaigns they focus on innovative solutions. Below there are some of the most recognizable designs that are appreciated by tourists and locals alike. One of the first was the use of QR codes in tourism in Łódź. The project “Decode Łódź”, which was initiated to promote Łódź, uses QR codes. For this purpose, QR codes have become mobile media of tourist information in Łódź. In the course of marketing campaign aimed at promoting Łódź as the city of creative technology solutions deployed in

the city of Lodz QR codes so that, when scanned, showed complete information on visited monuments. Through the use of QR codes, as a communication tool, it was possible to combine education with modern technology. Tourists can finally have access to tourist information any time which certainly turned out to be a great convenience. The system consists of more than 70 plates arranged in three thematic routes (Villas and Palaces, Architecture, Industrial and Piotrowska Street Road). It is a comprehensive guide to the Łódź, with a variety of information, trivia, photos, and surprises for mobile phone users [8].

Similar e-tourism project is run in Żory. There, just outside of the city, were placed electronic LED signs, which serve as the first source of information on tourist attractions in the city. Along the main streets are arranged in a two-dimensional array 150 code relating to information on sights, the history, or geographic location. Noteworthy is the fact that the tourist can find a guide in Polish, German, or English. Today, QR codes can be found also in such cities as Żory, Sanok, Uniejów, Warsaw and the Industrial Monuments Route of the Silesian Province, but also in Lipnica Murowana, a small town located in the Małopolska, which lately joined the group of owners of mobile guides.

QR codes are also used at bus and tram stops. Many cities use them to support residents and let them to obtain access to current timetables of public transport. And all because of 2D codes that lead to the page that contains information about upcoming departures (about 30 minutes) from the vehicle stop each of the lines serving it.

QR codes may be also used in urban games. These games are not so popular in Poland, as they are in the western countries nevertheless such projects have been introduced in the Polish tourist market. For example, regular QR Deathmatch competitions are held in Spain. All the players print out QR codes and tape them to their backs. They get out their phones and connect to one another, with an identifier matching the data on their QR codes. Now they all try to scan each other without being scanned (i.e., laser tag). During the play their devices display the current camera view and who is currently "it". Nowadays, games using QR codes are held in Wrocław, Gdańsk, Łódź and Uniejów, etc

One of the examples of projects run in tourism field is I-SPEED supported by the city of Warszawa [8], [14]. The project was initiated in 2008, when Poland was preparing for jubilee of the great Polish composer Fryderyk Chopin, in 2010. It was set up to organize special programmes celebration for his 200th anniversary. Concerning use and development of ICT solutions, project consisted of creation of the Royal Route, including Chopin's multimedia benches at key locations with his life playing music and downloadable files for mobiles, creating interactive Museum of Chopin, with audio files (like: Chopin's letters), and interactive games downloadable for mobiles. Additionally the Museum's Night Facebook page was prepared.

Concerning the use of different tools and project described above, the results were as follows:

- Chopin's Museum was visited by 175,000 visitors during eleven months (April 2010 – February 2011);
- Audio guides in 6 languages were downloaded from city web site over 158,000 times;
- Chopin's mobile application was downloaded more than 160,000 times;
- Mobile Travel Guide was downloaded about 160,000 times (in 2010). It can be estimated that in 2010, Warszawa was visited by 7.85 mln visitors (including 2.62 mln foreigners).

In Warszawa, tourist trials use two types of codes: (1) QR code and (2) Data Matrix. Matrix barcodes were located on the "Traces of Chopin" and it was also a part of I-SPEED project. There are fifteen multimedia benches located on the route. Everybody can read matrix barcodes using mobile phones with built-in digital cameras and equipped with the right

software. Visitors can download the software on their phone directly from the internet. After a while, the message is received with a link to the needed application. Then, the application should be launched and the photo of selected code should be taken by a phone. In the code there is a link to the mobile travel guide with the information about Chopin. It can be composer biography, information on tourist trail and also Frederic Chopin footsteps in Warszawa. The application can be also directly available on mobile devices from the internet.

City guide is a free mobile application, where one can find actual information about coming events, local monuments and interesting places worth to see. Most of the big cities in Poland offer tourists mobile applications. Cities provide tourists and their residents useful mobile applications, so it is easy to keep track of the most interesting events and attractions [11, 17].

There are the set of features, which stand for a good city application: transparent and simple interface, information about the history and sights of the city, integration with map and navigation, current news including weather and attractions (GPS), opportunity to purchase/booking tickets for events, mean of transport, hotel, restaurants, etc. (or a combination of city tourist card), video- and audiofiles, photos (possibility of co-creation of content by users of the application), availability on the most popular mobile platforms, several language versions (English version is obligatory), scenarios tours (the ability to create their own plan of sightseeing, or use the ready-made), integration with hotels, important contact information, hotspots (information about free and paid Wi-Fi networks in the city). One of the best city applications is *Visit Szczecin*. The application can facilitate the choice of a hotel, give the location of the nearest restaurant, café or club, show museums, theaters, places of entertainment and recreation. Easily and quickly find the most important information you will learn where to spend your time and what is currently happening in the city. The application prepared on behalf of the City of Szczecin. Frequently used functions in the application are: information and useful telephone numbers. *Visit Szczecin* advantage is that the application has been prepared based on the technology of augmented reality, which is an expanded reality. It allows for a visual representation of a real space. Just when using the function Map on the smartphone in a horizontal position. It is worthy to mention *Łódź Insider*, one of the first such applications in Poland. It was developed in 2011, when such solutions only gained in popularity. Having a municipal official mobile application, which today is a standard, it was then absolutely a pioneering concept. Additionally, for traveling by public transport, *Łódź Insider* can be used as a pocket timetable. Insider has been prepared by the City of Lodz and is constantly updated.

CONCLUSIONS

The role of the tourism economy in economic development is very important. Tourism dynamically affects the development of other sectors, stimulates the growth of GDP and creates jobs in other sectors. On the other hand, tourism is susceptibility to external influences. It has got an interdisciplinary nature, seasonality and sensitivity. All that causes the tourist market requires external support. For these reasons, tourism should occupy a special place in national and regional policy. The potential of Poland in terms of cultural heritage is very significant. In the ranking of the competitiveness of countries in terms of tourism (The Travel & Tourism Competitiveness Index) Poland in terms of cultural resources received in 2011 (The Travel & Tourism Competitiveness Report 2011) high 17 place in the ranking of 139 countries surveyed [13]. One of the factors contributing to this high ranking Polish is certainly the fact that on the List of World Cultural and Natural Heritage in Poland there are 13 objects of cultural heritage. Tourism contributes to the development of other sectors through indirect costs, and stimulates the flexibility to create new jobs – in the tourism sector and related sectors.

Analyzing the regional development strategies and taking into account that we are living in the smart society, it can be concluded that local governments do not recognize the opportunity in the development of e-tourism. The main and common element that appears in these documents is the development of telecommunication network, which provides support to the tourists and is the potential mean for the development of e-tourism. In the analyzed documents, authorities often plan promotion and development of the tourist information systems. The lack of description for more detailed solutions may be a result of a general document format, not their absence in regional policy.

Following W. Chan Kim and Renée Mauborgne authors of the “Blue Ocean Strategy”, it is important to look for a blue ocean (the niche market), not for the “red oceans” – the markets which are already developed. It produces new values, change the boundaries of existing possibilities and make the use of innovation. Innovations are considered a crucial role in the growth of regions as well as tourism is an important regional development tool [6]. Researches on tourism innovation give the local economic impact. One of the most important areas of innovation in tourism concerns the use of ICT. ICTs evolve constantly, providing new tools for tourism marketing and management. The diffusion of ICT in the tourism businesses enables consumers to interact directly with the tourism service providers, leading to the reduction of the transaction costs. This is also a process which supports the creation of new services and processes giving joint profits. From the other side, it gives tourists an opportunity to know more about chosen region anytime in understandable language, which is confirmed by above examples of introduced projects.

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SHAPING A SAFE PUBLIC SPACE IN ACCORDANCE WITH THE PRINCIPLES OF CPTED CONCEPTS: SENSE OF SAFETY IN AKADEMGORODOK

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Ensuring the safety of the public space is one of the most important aspects of socio-economic development of the city and the state. The occurrence of threats results in life and health losses, residents' and companies property losses, public infrastructure and environment losses. Elimination of the number of criminal acts and traffic incidents requires a responsible look at the public spaces shaping issue. The purpose of this paper is to present the principles of creating safe spaces in cities in terms of improving both the level of safety and the sense of safety. The specific objective is to assess the Akademgorodok according to the CPTED best practices, and to present the results of the pilot survey on the sense of safety in Akademgorodok.

INTRODUCTION

Contemporary efforts to improve the quality of inhabitants' life concern especially an improvement of access to education, culture and labor market. From the point of view of Abraham Maslow pyramid it should be noted that one of the most important needs of the society (just after physiological needs) are the safety needs. They are followed by the need for belonging, love, and self-realization. The state, public services and other appropriate bodies are responsible for the public security maintenance. The purpose of this article is to present the principles of shaping safe public space within the concept of Crime Prevention through Environmental Design (CPTED) with reference to the public space in Akademgorodok in Novosibirsk (Russia).

SAFETY DEFINITION

The term safety indicates a state with a protection. It means *sine cura* and *securitas* in Latin. The ancient Romans noted safety as a freedom from worries, problems and damages. In order to enhance the safety of individuals, people began to create statehoods. They observed that living in a larger group increase the level of protection against enemies and the phenomena of nature. Safety issue has been gaining a great importance since the terrorist attack on WTC, September 11, 2001.

Safety is a broad term because it involves political, economic, social, and environmental elements, thus, there are a lot of its definitions. Safety is also related with the security term. Safety is a state of absence of any threats, in this case for the individual, social group or society. Security is a protection provided by the adequate entities in the country.

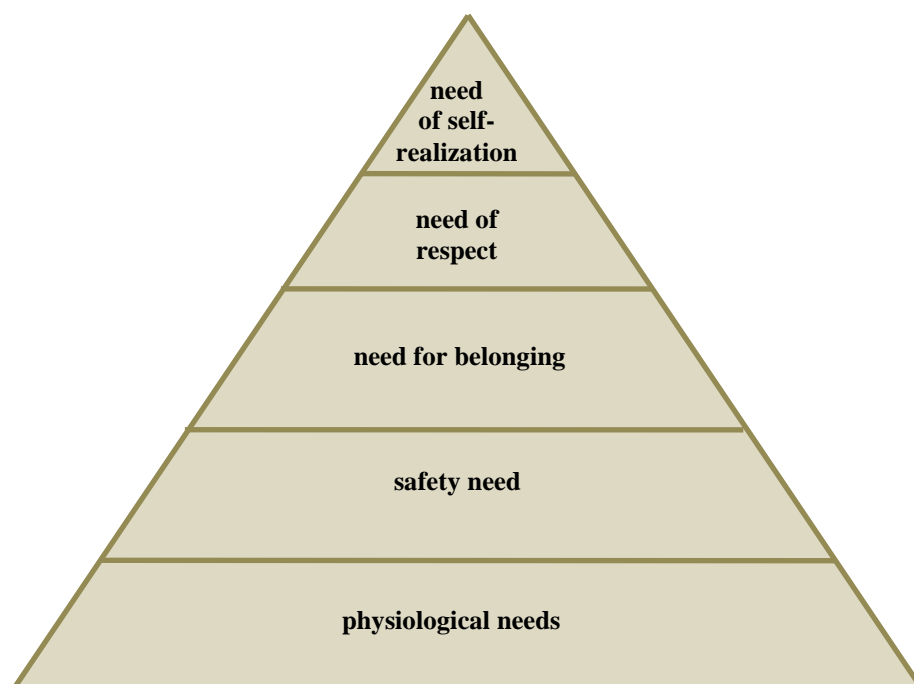
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Safety is considered to be¹:

- a state without a threat of loss of health, life and property because of human activities and natural disasters²;
- no risk or protection against him³;
- state without fear and anxiety for themselves and others;
- being confident about the tomorrow;
- a situation in which a man is not endangered, and during sudden, unpredictable situations can count on the help of others.

Safety is a key element of undisturbed functioning of the individual, community, region and country. According to Abraham Maslow pyramid of needs, need of safety is located right on the basis. It means that it is a pillar of achieving other needs (Figure 1).



Źródło: M. Lisiecki, B. Kwiatkowska-Basałaj, *Pojęcie bezpieczeństwa*, [w:] *Zarządzanie Bezpieczeństwem*, P. Tyrała (red.), Wydawnictwo Profesjonalnej Szkoły Biznesu, Kraków 2000, s. 53–54; P. Tyrała, *Zarządzanie kryzysowe–ryzyko–bezpieczeństwo–obronność*, Wydawnictwo Adam Marszałek, Toruń 2001, s. 9.

Fig. 1. Abraham Maslow pyramid of needs

Two elements can be researched: safety level and sense of safety. The safety level is measured by available statistics, including the number of events such as traffic accidents in your area. On the other hand, the sense of safety is related to an individual assessment of the threats. It can be researched using surveys carried out in a given social group such as students, women, children, the inhabitants living in some area.

¹ *Dictionary of the Social Sciences*, London 1964, p. 629. Por. J. Stańczyk, *Współczesne pojmowanie bezpieczeństwa*, Instytut Studiów Politycznych Polskiej Akademii Nauk, Warszawa 1996, p. 17.

² Lisiecki M., *Zmiany w administracji publicznej*, [w:] *Współczesne organizacje i regiony w procesie zmian globalnych*, M. Lisiecki, H. Ponikowski (red.), Wydawnictwo KUL, Lublin 2004, s. 268.

³ Brandowski A., *Bezpieczeństwo jako nauka*, „Zagadnienia Eksploatacji Maszyn” 1992, nr 3 (91), p. 457.



SECURITY ISSUE IN A BUSINESS PRACTICE

The security (safety)¹ issue has a great importance in a business practice too. More and more companies are interested in securing their goods, information and ensuring safety of their employees. The main threats to the supply chain security are terrorist attacks, smuggling, thefts, natural disasters and adverse events like: breakdowns, fires, explosions, and traffic accidents².

In recent years, a concept of the of supply chain security management (SCSM) has been developed. The organizations understand security as “a protection of assets (people, goods, technical infrastructure), including economic relations, efficiency and effectiveness”³. SCSM approach bases on the cooperation of enterprises with economic partners, public entities and government, as well as with competition⁴. The cooperation concerns establishing policies, procedures and action plans and also implementing technology to protect supply chain assets against thefts, terrorism, and smuggling of people or weapons of mass destruction⁵.

Basically, among the main reasons for increasing interest in the business security company recognize: brand protection, client requirements, legal regulations⁶. Additionally, the advantages resulting from SCSM are: increased security of goods, supply chain transparency, decreased time of transport, efficient customs clearance, increased client's satisfaction and fewer complaints⁷. The most common international initiatives concerning supply chain security are: C-TPAT (Customs-Trade Partnership against Terrorism), CSI (Container Security Initiative), PIP (Partnership in Protection), BASC (Business Alliance for Secure Commerce), AEO (Authorized Economic Operator), TAPA (Transported Asset Protection Association). In this area also many international management standards are established: ISO 28000 (Supply chain security management), ISO 31000 (Risk management), ISO 27001 (Information security management), ISO22301 (Business continuity management).

THE PHENOMENON OF CRIME AND ROAD SAFETY

Public space is a part of the city or rural areas available at no charge to all who can use it or see it. We can point hear such elements as streets, squares, parks. The problem of creation of attractive space also includes all activities related to preventing crime and improving road safety. Among the sources of a crime are: unemployment, social inequalities, social pathologies, alcohol and other drugs. Crime is being determined by a high population density and urbanization. It means that crimes occur in urban areas the most often and less in rural areas, where the population is not anonymous and there are more interpersonal ties.

The crime definition involves “criminal triangle”, which consists of:

- perpetrator – a person or group of people who plan to commit a crime;
- victim – the person, such as older person;

¹ In a business practice a term *security* is used more often than a term *safety*. Safety refers especially to the health and occupational issues at work.

² *Physical Risks to the Supply Chain*, CFO Publishing Corp., February 2009.

³ Z. William, J.E. Leug, S.A. LeMay, *Supply Chain Security: an Overview and Research Agenda*, International Journal of Logistics Management, Vol. 19, No. 2, 2008, pp. 254–258.

⁴ Ibidem.

⁵ D.J. Closs, E.F. McGarrell, *Enhancing Security throughout the Supply Chain*, Special Report Series, IBM Center for the Business Government. April, 2004, p. 8.

⁶ D. Closs, C. Speier, J. Whipple, A.M. Voss, *Framework for Protecting Your Supply Chain*, Supply Chain Management Review, Vol. 12, No.2, 2008, pp. 38–45.

⁷ B. Peleg-Gillai, G. Bhat, L. Sept, *Innovators in Supply Chain Security: Better Security Drives Business Value*, The Manufacturing Institute, Stanford University, July 2006; *The Benefits of a Secure Supply Chain*, Industry Week/IW, December 2006, Vol. 255; No 12, p. 43.

- place – an area or a place where the offense occurs – shaping the space can contribute to reducing the likelihood of crime occurrence.

The phenomenon of crime involves “*Broken windows*” theory¹. It discusses the situation that if there is no owner’s reaction to breaking the window by a hooligan in a factory’s building, the next similar situations can occur. As a result, the street can become dangerous, criminal groups can appear and residents can start avoiding this street. The theory shows that if there is no one who takes care of a space, in result this space can be devastated, abandoned and dangerous in the future. In consequence there is a huge need of removing destructions and renovating the destroyed places fast. The activities can be following: painting over graffiti or repairing of damaged infrastructure such as benches and telephone booths. These activities manifest that someone cares for a given space. It can discourage potential people from the other devastation and committing next criminal act.

Traffic safety is associated with the occurrence of road accidents and collisions. Participant of the traffic events can be not just vehicles but also pedestrians and cyclists. Among the causes of these events are, for example, speeding, failing to give the right of way, entering at a red light or not keeping a safe distance between vehicles².

PRINCIPLES OF THE SAFE PUBLIC SPACE ACCORDING TO THE PRINCIPLES OF CPTED. TOOLS FOR ELIMINATION OF CRIME AND TRAFFIC INCIDENTS

The experience of countries such as England, Netherlands, Canada, United States of America and conducted numerous analyzes and studies confirm that the proper design of the physical space helps to improve and increase the sense of safety of inhabitants³.

The main thrust of Crime Prevention through Environmental Design (CPTED) is that “the physical environment can be manipulated to produce behavioral effects that will reduce the incidence and fear of crime, thereby improving the quality of life. These behavioral effects can be accomplished by reducing the propensity of the physical environment to support criminal behavior.”⁴

CPTED concept consists of the following principles: territoriality, surveillance, image, access control, target hardening, and activity support (Figure 2). To follow these principles when creating and shaping some area is to increase the safety level and sense of safety.

Territoriality. This principle stresses that the well maintained space, for which a unit or a social group cares and feels responsible, is less exposed and vulnerable to criminal acts. (Pictures 1, 2) Among the evidences of the well-groomed space are:

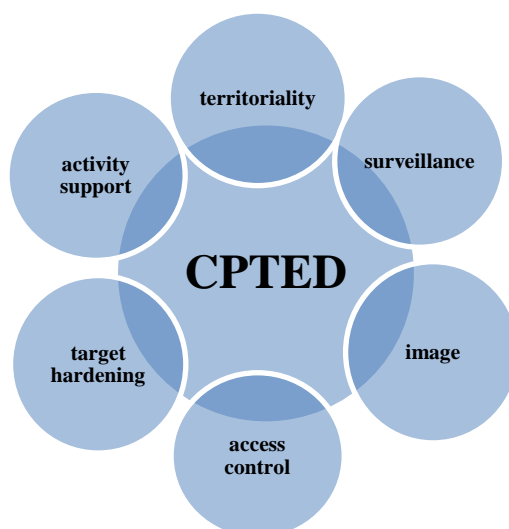
- mowed lawns, well maintained green;
- cleanliness of the place and the streets;
- efficient lighting;
- well-maintained infrastructure;
- lack of graffiti.

¹ Gkelling G., Coles C., *Fixing Broken Windows: Restoring Order and Reducing Crime in Our Communities*, New York: A Touchstone Brook, 1998.

² Statistics of the Police Headquarters in Poland.

³ R. Głowacki, K. Łojek; A. Urban, *Rewitalizacja przestrzeni fizycznej jako narzędzie zapobiegania przestępczości*, Wydawnictwo Wyższej Szkoły Policji, Szczytno 2005, p. 14–15.

⁴ *Safer Places. The Planning System and Crime Prevention*, Office of the Deputy Prime Minister, Queen’s Printer and Controller of Her Majesty’s Stationery Office 2004, p. 104.



Source: Cozens P.M., Saville G., Hillier D., Crime prevention through environmental design (CPTED): a review and modern bibliography, Property Management, Vol. 23, Iss: 5, 2005, p.330.

Fig. 2. CPTED principles



Source: own photos

Pictures 1, 2. Housing estate in Lodz: examples of responsibility for space.

Surveillance principle indicates that the supervision of the places increase the level of safety and sense of safety. Supervision can be formal or informal. Formal supervision is associated with the presence of monitoring cameras and police patrols. This deters potential offenders to commit the offense, as well as allows for better identification of the perpetrator. Informal supervision results from informal social ties, residents' concern and sense of responsibility for in a given area. It is associated with a social control of residents and passers-by of the space.

To facilitate an informal supervision, it is necessary to provide an adequate visibility of the site (playgrounds, parking lots, streets) for example, from the windows of apartments. It also requires an adequate lighting to improve the identification of individuals in space. Areas with a poor visibility include places with too lush vegetation or underground passages. Places with a higher level of informal supervision include pedestrian streets, squares and public transport stops. Consequently, to speak of informal supervision, the space should be activated and shaped appropriately to obtain necessary functions. For example, city centers strive to

connect the residential and service functions what facilitates informal supervision by residents and staff throughout the day. Basically, the informal supervision may be conducted by civil patrols. Civil patrols are mainly created voluntarily by the local community to observe the space, improve the safety and prevent the crime. On the other hand, they may consist of the unemployed or even students who build appropriately trained patrols cooperating with the institutions responsible for the safety level.

Access control principle means that an access to the site or the area should be controlled and restricted for the third parties. This can be achieved when using proper green design, entrance and exit locations, proper gates, fences, intercoms, hedges, posts and railings.

These solutions can be used for arranging and limiting the movement of pedestrians, cyclists and vehicles to improve safety. In addition, it can be supported by a traffic segregation using bike paths or wide sidewalks.

The target hardening means any tool that can be used to secure an object or a place and prevent or impede a criminal offense. This includes using high-quality doors in building, proper locks, resistant windows, alarms and fences¹.

Image principle. Appearance of the space improves safety level and sense of safety according to the “Broken windows” theory². Image principle says that the space should be neat and clean. Infrastructure should be of good quality, without any damage. Graffiti should be eliminated from the area. Any damage and destruction should be repaired immediately. These activities increase the awareness of users that taking care of the space is important and that no one can devastate the public property. In addition, there can be no abandoned and in poor condition buildings. Moreover an adequate number of litter bins in the footpaths are crucial because their lack has a negative impact on the image of the space and favors littering. Finally, whole infrastructure should be constructed of materials resistant to destruction. Further waste bins and benches should not be movable.

Activity support principle means providing a proper space design that in form the user how to behave. The design influences the order and respect for the space. All signs such as “keep silence in the park”, “do not trash”, “do not feed the birds”, as well as all road signs are required. Among road signs there are signs indicating the prohibition of entry, required speed on the road or even parking places.

SAFE PUBLIC SPACE IN AKADEMGORODOK

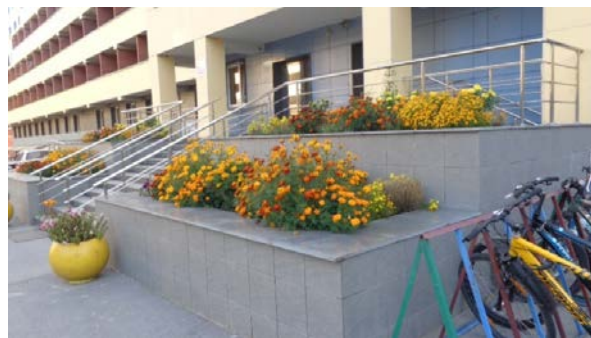
Analyzing the public space in Akademgorodok, from the point of view of its favorable safety characteristics and a sense of safety, especially the aspects of personal safety and traffic must be considered.

The inventory of the proximal and distal surroundings of the dormitories indicates that the sense of responsibility for the space is high. There is a lot of well-maintained green in front of dormitories, faculties of the university and other entities. Lawns, flowers are properly maintained by appropriate services that may be seen each day in Akademgorodok (Pictures 3, 4).

In the study area, next to the sidewalks and dorms an order, clarity and tidiness of the places can be identified. On the other hand, places which people visit less often, for example forests and the river bank are cluttered and neglected.

¹ *Safer Places. The Planning System and Crime Prevention*, Office of the Deputy Prime Minister 2004, s. 103–105.

² *Introductory Handbook on Policing Urban Space*, UNHABITAT for the better urban life, Criminal Justice Handbook Series, United Nations New York, 2011, United Nations Publication, p. 39; Kelling G., Coles C., *Fixing Broken Windows: Restoring Order and Reducing Crime in Our Communities*, New York: A Touchstone Brook, 1998.



Source: own photos.

Pictures 3, 4. The maintenance of green

The beach next to the Ob river requires much attention. Currently it is not arranged what proves that no one is interested and responsible for this space. It should be clean and user-friendly. The river gives a great opportunity to relax and socialize. It is recommended to get rid of litters, place trash bins and develop proper infrastructure (sign, pavements, pier, and promenade).

Taking into account lighting, it should be noted that the sidewalks and streets are rather well lit. A very good practice is that construction works being carried out at the dorms are very well secured and fenced which prevent illegal entry. Moreover, this place is very well lit at night which increases sense of safety among users of the space (Pictures 5, 6).



Source: own photos.

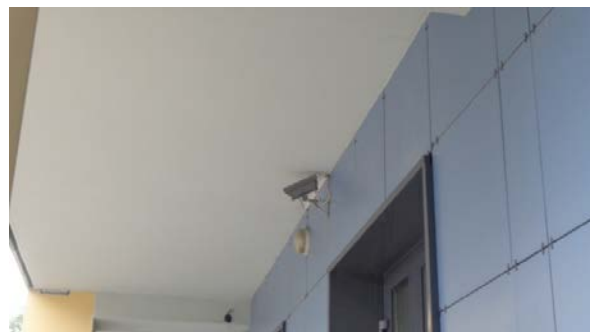
Pictures 5, 6. Illuminated construction site

There are some deficiencies in lighting sidewalks, which are located in the forest areas. Lack of lighting contributes to the deterioration of the sense of safety of space users.

The infrastructure is well-maintained: benches, playgrounds are of good quality and show no signs of vandalism. From the point of view of eliminating crime, the organization of young people time turns out to be very important. In the researched area there are well-maintained sports facilities, such as playground, running track, swimming pool, fitness in open space and even tennis court.

It should also be mentioned that there is a high activity in terms of maintaining an appropriate safety level of road infrastructure in Akademgorodok. Identified in the evenings overturned road sign in a close proximity to the dorms, the next day in the morning was repaired.

According to the occurrence of the graffiti there is no high intensity of this phenomenon. There is one place with big graffiti. It is located next to the swimming pool, on the fence of a tennis court. But this can be treated as a part of a space and looks properly arranged (Picture 7).



Source: own photos

Picture 7, 8. Graffiti in public spaces and the example of formal supervision at the dormitory

There is both formal and informal supervision of the researched area. The formal surveillance consists of expanded monitoring (Picture 8).

Informal supervision is accomplished on the footpaths because of the large number of users. In addition, informal supervision is carried out from students' windows. There are views to the car parking, parking for bicycles, garbage located in front of the dormitories (Pictures 9, 10, 11).



Source: own photos.

Pictures 9, 10, 11. Informal supervision from the windows of the dormitory

Access control and target hardening is carried out by appropriate services. There is an effective security service which is present at the entrances to the faculties and dormitories. It identifies people entering the important, public spaces and protects against unauthorized persons. In each dormitory there is an order maintained by proper persons located on each floor.

In Akademgorodok there is also all the necessary infrastructure like posts, fences of playgrounds, walls, barriers, gates, preventing car entry to the particular public spaces (Pictures 12, 13).



Source: own photos.

Pictures 12, 13. Access control

In the study area there are signs informing about the fire hazard in terms of its sources and appropriate behavior when the fire occurs. There are information boards and fire controls located near the forests and in the buildings that are the evidence of a high level of compliance with fire and health and safety regulations (Pictures 14, 15).



Source: own photos.

Pictures 14, 15. User support

From the point of view of road safety it should be noted that the quality of infrastructure is at a good level in Akademgorodok. The spaces for vehicles, cyclists and pedestrians are designated. The quality of roads and sidewalks is good and encourages going on foot. Hori-

zontal and vertical road signs are also in good technical condition. On the base of the observations it is proposed to improve the synchronization of lights for pedestrians and vehicles:

- current status: the red light for vehicle turns on at the same time as green light for pedestrians;
- suggestion: to improve the traffic safety the pedestrian green light should turn on a few seconds earlier than the red light for vehicles.

SENSE OF SAFETY IN AKADEMGORODOK

In October 2013, a pilot survey was carried out. The subject was the sense of safety. The respondents were 30 students of the Novosibirsk state University (NSU) living in Akademgorodok. The questionnaire consisted of four questions.

1. *“Is Akademgorodok a place that can be called a safe and peaceful one?”*

The possible answers were as follows: yes, rather yes, no, rather no and I do not know.

The results show that nearly all respondents regards Akademgorodok as a safe place. 47% of respondents feel “safe” and 47% “rather safe”. Only few persons indicated that they “do not know”.

2. *“Are you afraid of following threats?”*

The respondent could mark any number of answers pointing a range (1–5), where 5 is the greatest degree.

The respondents are afraid of all threats but in different degree (Table 1.) The highest ranges received, in the following order:

- low culture of drivers;
- unlit paths in the forest;
- traffic incidents;
- assaults and robberies.

3. *“Indicate the places that in your opinion are the least safe in Akademgorodok.”*

- Here, the most often answers are: paths in forests and places around the trade center.

4. *“Please suggest measures the implementation of which has contributed to improving your sense of security.”*

- Responses were dominated by suggestions of the improvement of lighting the paths in the woods, as well as the improvement of lighting the roads and increase the number and effectiveness of police patrols.

Table 1

The threats of which the respondents are being afraid

	Threat	Rang
1	Petty thefts	1,3
2	Assaults and robberies	1,9
3	Destruction of property	1,3
4	Aggression from the people after drinking alcohol	1,7
5	Unlit paths in the woods	2,7
6	Traffic incidents	2,4
7	Low culture driving / reckless drivers on the road	2,7
8	Forest fires	1,3
9	Fires in buildings	1,5

Source: own study, October 2013.

CONCLUSIONS

Creating and shaping the public space on the basis of the best practices is a key element of the safety. The assessment of the public space in close proximity to the dorms in Akademgorodok shows that this space has the characteristics of the safe space.

Ensuring safety requires permanent actions aimed at eliminating threats. It is absolutely essential to keep it in mind. This means that all threats should be monitored constantly and the space shaped actively. From the point of view of the occurrence of vast forests in the study area, the focus should be on creating a proper lighting, infrastructure and increasing the number of police patrols.

The units responsible for the safety should be characterized by an active attitude towards improving safety. A useful tool in the development of safety is “a program to improve safety” consisting of a diagnosis of the current status, objectives and tasks to achieve the objectives. The most effective programs are those elaborated not only by the police, but in cooperation with both the authorities of the city and university and public and economic operators.

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PROBLEMS OF PUBLIC ADMINISTRATIONS DECENTRALIZATION FROM THE POINT OF THE BUDGET SYSTEMS FORMATION¹

Tatyana V. Sumskaya²

The article analyses the opportunities of budget decentralization in the light of forming and functioning of local self-government system. The author exposes factors, determining a correlation of centralization and decentralization. A great attention is paid to the principles of expenditures responsibilities demarcation, to the problem of taxes' revenues fixing and to variants of regulation of vertical and horizontal inequalities in state budget system. The article exposes the role of local self-government as basis of federal state system. As a result, the author proposes a revenues structure on local and regional level with variant of local taxation system.

The essence of the federal structure of the state can be reduced to the opportunities for its subjects to make their own decisions as an independent entity within the framework of a single state. This ensures the achievement and preservation of national unity and the relative independence of the federal subjects with their legal equality in relations with the federal center. The federal government offers the most robust and flexible mechanism for coordinating the interests of the center and the regions, motivating the subjects of the federation for the preservation of national unity.

Under the federative system of government, regional authorities activities are implemented taking into account not only the local conditions of socio-economic development, but also the mechanisms of accountability of regional authorities to the local population from which the power is mandated to. This distinguishes it from a unitary system that is characterized by decision-making at the center without its adaptation to local conditions and regional authorities accountable to central government. The differences in the principles of accountability ensure important background for the organization of a regional control in federal state structure in comparison with unitary system.

Federalism creates prerequisites for the effective organization and functioning of finance at various levels of government, including the budget process. The practice of management of the public finances in a country with few budgetary levels is called fiscal federalism. Its essence lies in the effective functioning of the organization and interaction of the budgets of all levels, providing the interests of all participants in the budget process.

The basis of the existing models in the world practice of fiscal federalism is the principle of decentralization, which is reflected in the form of government; in the structure of the federal, regional and municipal law; in the schemes of distribution of powers between different levels of government and in the construction of uniform, but multilevel fiscal systems.

¹ This article was prepared as part of the 7th Framework Programme FP7-PEOPLE-2011-IRSES Project No. 295050 FOLPSEC – Functioning of the local production systems in the conditions of economic crisis (comparative analysis and benchmarking for the EU and beyond).

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Decentralization has both advantages and disadvantages, which are identified by comparing the social costs and benefits. It should be borne in mind that if decentralization doesn't affect the costs, the decentralized control is more effective, or at least it is not inferior from the viewpoint of efficiency. Decentralization is effective, if the rise in costs is covered by wins.

Fiscal decentralization is designed to achieve two main objectives: to improve the allocative and productive efficiency of the budgetary system. Due to decentralizing, public services can be organized and delivered in such a way as to best suit the preferences of local residents thus providing an increase in allocative efficiency or the quality of available resources allocation between the directions of their use. Along with this decentralization is accompanied by increased productivity of the budget system, ensuring accountability of local authorities to the population. Also the number of levels of authorities at which solutions have to be coordinated is reduced, since more powers are given to local authorities that know the local context and local needs better.

Thus, decentralization in its broadest sense involves the transfer of greater powers to local authorities, so that they can make their own decisions on the formation of income, expenses, and legal regulation. Local authorities are closer to the people, know better their needs and thus are able to meet their needs better than the central government. The proximity of the local authorities to the population also contributes to increased civic participation, transparency, and increased government accountability to the public.

Another important argument in favor of decentralization is the fact that the various public goods have unequal coverage. For example, the services of national defense are enjoyed by citizens of the country, and the benefits of inland waterways or the presence of the forest goes only to residents of specific regions. Public services, such as garbage collection and disposal, street lighting, etc., are addressed to residents of specific communities, and the need for them are different in various regions. Since the central government cannot account for such a variety of preferences in each region or country, the production of various public goods should be carried out by the different levels of government. This means that for the lowest level of government should be secured all the tax (revenue) expenditure responsibility and authority for statutory regulation, with the exception of those powers as to which may be presented convincing evidence that fixing them for the lowest level of government is inefficient. Provision of public goods only by institutions under the central government is associated with significant costs for a uniform approach to all areas (on some areas will be an overproduction of public goods, on the other – their underproduction) [1, 2].

An important advantage of decentralization is the fact that the proximity of the local authorities to the population and the frequent interaction between them allows to create channels of communication through which citizens can express their interests. Moreover, such a regular and active communication increases the accountability of local governments to their citizens. Administrative autonomy creates preconditions for learning, finding new approaches to improve the overall quality of governance. Decentralized systems are able to provide greater stability, as local autonomies limit the ability of the center to conduct fiscal or monetary policy at its discretion. Decentralization contributes to maintaining of markets and stimulates their development. Finally, the decentralized decision-making process allows evaluating different options for solutions, encouraging the spread of best practices. In this case, it is essential that the powers transferred to the level that can really hold any necessary actions and is interested in their results [3, 4].

It should be noted that substantiation of decisions about the decentralization of funds in the budget system requires complete and reliable information about the territorial structure and intensity of financial flows. It comes to developing territorial context of revenues and expenditures of the federal and regional budgets, provide an estimate of “upstream” and “downstream” of funds in the hierarchy of the administrative-territorial system of the coun-

try. These data help us to understand how much tax revenue comes from each particular area in the federal, regional and local budgets, and, conversely, how much of this budget is spent on the same site. On the basis of this information one would be able to judge the financial self-sufficiency of each territory and its ability to independently provide its own development. Only these assessments will take solutions for each territory, individual in content, but based on the general rules for the provision or failure of financial support.

Local authorities, having autonomy, on the one hand, get more stimuli to increase revenue within their competence, but they cannot cross certain boundaries of accumulation of resources in view of the openness of the economy. On the other hand, they are spending money more efficiently, because they depend on the taxpayer, and are able to more accurately determine the local needs for public goods and the efficient use of infrastructure capacity gained.

Generally, the effective functioning of fiscal federalism is possible if the decentralized decision-making relates to the delivery of those public goods whose benefits are mainly localized in the area and localization benefits are substantially aligned with the spatial localization costs; also, preferences related to local public goods, mostly differ between regions than within regions.

Of interest is a position, put forward by John Wallace and William Oates about the relation between centralization and decentralization in government, one of the most important levers of which is the budget system. According to the mentioned researchers, the larger the area of the country is, the less centralized, all other things being equal, should be governance (area factor); the more the population of a country is, the less should be centralized governance (population density factor); the higher the proportion of the population is concentrated in urban areas, the less should be centralized state and regional management (social infrastructure factor); the higher the level of per capita income, the more centralized governance and his participation in programs related to the redistribution of income should be (factor of investment depending on the state of the economy); the more diverse is the demand for public services, resulting from the unequal distribution of income across regions, the less centralized, all other things being equal, should be governance by the state and the regions (the factor of social dependence of the state of the economy) [5].

In light of this, it can be argued that the impact of fiscal federalism is determined primarily by approaches, used to consolidate expenses, income-fixing and organizing the movement of funds between the various levels.

As the basis of the separation of powers between the expenditure levels of the budget system a set of principles is usually laid:

- territorial Compliance (consolidation of public services for the same level of power, whose jurisdiction covers essentially all consumers of these services);
- subsidiarity (as close as possible to those territorial entities that carried budget services in the public interest);
- proportionality (matching of spending authority to financial resources of various levels of the budget system);
- economies of scale (number of costs is much better to carry out by large portions, wherein the provision of public services is assigned to the same level of power that can most effectively ensure the implementation of appropriate services);
- taking into account the external effects (the reasons for the higher centralization are high interest of society as a whole from the proper implementation of the individual regions/municipalities of its obligations and higher overall costs of their possible failure).

Obviously, making decisions on the division of expenditure responsibilities requires a comprehensive approach that addresses all of the following principles.

Of key importance is fixing of revenues (primarily taxes) in accordance with the expenditure side of the budget of a certain level. In general, three options of fixing tax revenues are known [6, 7].

In accordance with the first of them a local government gets all the tax revenues generated from the territory under its jurisdiction. In this part of the revenues should be transferred to a higher level of fiscal systems to meet expenditure obligations of the national government.

A weakness of this option is the possibility of reducing the effectiveness of inter-territorial redistribution of income, as well as restrictions to ensure fiscal stability. In addition, it can create inappropriate incentives for local authorities in respect of the financing of national expenditure commitments.

The second version of the distribution of tax revenues in contrast to the first involves the consolidation of all the taxes for the national government with the subsequent transfer of funds to lower authorities by providing grants or other transfers, either through the establishment of standards for deductions of income for all or certain taxes to the budgets of lower-level.

This option also has some drawbacks, the main one of which is the lack of correlation between levels of government, vested with the adoption of the spending decisions, and the region within which collects certain taxes. This undermines the basis for an effective system of intergovernmental relations. Without establishing such a relationship there is the possibility of excess either finance local expenditure needs either unjustified decline in financial resources transferred to the lower levels of the budget system. Both can lead to the inability to create a stable system of financing public services at the local and / or regional level.

The third version of the distribution of revenue powers gives some of the taxing powers to local and regional authorities, and if necessary, – compensation for the missing revenues either by the share consolidation of regulatory taxes either by transfers by transferring to the local budget.

This option, occupying an intermediate position between the two previous, is largely free from their shortcomings, as it allows assigning to the lower levels of government taxing powers, thus linking the value of the tax burden and expense of the received solutions. However, the local authorities in their actions are guided by considerations of form “cost-benefit”, which leads to an increase in economic efficiency. The implementation of this variant of the distribution of income, however, requires a coherent selection of taxes belonging to a local / regional authorities (local / regional taxes), and the share of federal taxes to the regional/local budgets (shared taxes).

The problem of the distribution of tax revenue is not limited to the full consolidation of specific taxes for local, regional or national level of government. Most often preferred is a combination of different schemes of fixing of tax revenues and tax authorities.

Understanding of the different types of government revenues on lower level is given in a table which shows that tax revenues of subnational governments can take many forms: own taxes, which are fully credited to the budget of the relevant authority, which has the right to determine the tax rate, and in some cases – to influence the procedure for calculating the tax base, and “overlapping” taxes, the base of which is determined by federal law for the entire country and subnational authorities shall have the right to set their own tax rates. [7] (Table 1).

The issue of fiscal autonomy of subnational governments depends on their expected role in the economic system of the country. If the economic role of the administrative-territorial units is reduced to the practical implementation of the policies formulated at the highest levels of government, there is no need to provide them with a broad fiscal autonomy. If, on the contrary, it is expected that sub-national governments will implement their

own spending programs, as well as the independent determination of the amount and quality of the appropriate level of public services, their inability to change the tax rate, and therefore – the amount of budget revenues, is a serious problem arising from the mismatch of expectations, needs and aspirations of the public authorities of the actual revenue opportunities [7].

Table 1

Types of fiscal autonomy of subnational governments

Kind of a lower level of budget revenues	The level of authority to control the view of revenue
Own taxes	The power to determine the rate and tax base belong to the authorities of the appropriate level
“Crossed” taxes	The tax base is determined by federal law, the authority to determine the rates belong to the authorities the appropriate level
Regulators (shared) taxes	Rate and the tax base is determined by federal law, but a fixed percentage of tax revenue is credited to the budget authority of the appropriate level (aspect ratio can be calculated both on the basis of the share of tax revenues from the territory under the jurisdiction of the authorities of relevant level, and on the basis of other criteria – population, expenditure needs, revenue potential)
Non-purpose transfers	Share or transfer amount is determined by the central government, but the authorities – the recipients of transfer has the right to determine the direction of spending. In some cases, the amount of transfer tax may depend on the tax efforts of the recipient
Targeted transfers	Transfer amount is determined by the central government, authorities – the recipients are required to spend their money on certain programs

Source: [7] p. 91.

The use of these schemes of the distribution of tax revenues and spending obligations may lead, however, to the emergence of vertical and / or horizontal imbalances. Vertical imbalance is possible in case of discrepancy between its income and expenditure responsibilities at different levels of the budget system and the horizontal imbalance occurs during the differentiation of its own fiscal capacity of subnational governments at the same level of the budget system. To eliminate these imbalances a variety of mechanisms of transfer or borrowing are usually used.

The transfer of resources from one level of government to another budget is carried out usually in two ways – through a system of revenue sharing and grants. In this case, revenue sharing can have a number of options such as the division of the tax base or the centralization of tax revenues and their subsequent distribution according to selected criteria.

Allocation of grants may also have two types – non-targeted and targeted transfers, each of which can, in turn, be allocated as a fixed amount or as renewal, be conditional or unconditional, and stand out with co-funding. Selection of a particular allocation mechanism of intergovernmental transfers depends on the objectives of economic and fiscal policy in a given time.

In general, there are three possibilities of the state policy in the field of intergovernmental transfers to align the vertical and horizontal imbalances [7]:

1) The use of separate mechanisms aligns the vertical and horizontal imbalances. Subnational budget deficit alignment is performed by dividing the tax revenue and allocation of transfers from the national budget, while the alignment of fiscal potential is produced by the horizontal payments from regions with high budget level to the regions with low incomes. A similar system is used in the Federal Republic of Germany.

2) The complex system of equalization transfers. Both vertical and horizontal imbalances are aligned with a unified system of equalization transfers and special grants. A similar approach is used in budget systems in Australia and Canada.

3) Only the vertical alignment of the imbalance of the budget system. As with the first version of the budget policy, subnational deficits are aligned with the fixing of regulatory taxes and equalization transfers, but there are no specific measures to equalize the horizontal imbalance. In this case, the movement of capital and labor arises as a result of the difference in incomes in sub-national entities, as well as the net fiscal benefit to the regions (the net benefit of public expenditures and taxes paid). Under this option, fiscal policy may allocate special grants that, among other purposes, can be horizontal leveling effect. This approach is widely used in the USA.

In addition to establishing a relationship between the objectives of the horizontal and vertical alignment of imbalances in the design of the transfer system it is also required to determine the relationship between the types of transfers. The latter, as mentioned, can be either conditional or un-conditional or targeted and untargeted transfers. Conditional transfers are grants, provided on the conditions of co-financing, the simple purpose transfers and block grants, each of these types of transfers, in turn, can be allocated as a fixed amount, and with the possibility of extension. Unconditional transfers are allocated in the form of deductions from income tax in the sub-national budgets or in the form of direct transfers in a fixed volume or to be extended.

The practice of construction and functioning of budgetary systems in the federal structure of the state shows that the distribution system transfers must meet the following criteria [7]:

First, you need to avoid a situation where equalization transfers just cover the gap between revenues and expenditures of sub-national budgets. The distribution system of transfers should be built in such a way that sub-national authorities have not been able to influence the size of the transfer by its solutions in the area of expenditure policy, tax policy and tax administration.

Second, the application of the system of equalization transfers should not be accompanied by significant costs for the collection and processing of the initial information.

Third, the development of methods of distribution of transfers is necessary to involve representatives of the regional government to reach a political consensus in this area, in the absence of which the system will be ineffective. As a result, there can be a step change in the principles of horizontal and vertical alignment in order to avoid sharp fluctuations in the fiscal situation in the regions.

As a result, there should be incentives to conduct rational and responsible fiscal policy, to expand its own revenue base and for efficient use of public funds for the benefit of the local population.

The establishment and operation of an effective system of intergovernmental relations is ultimately aimed at:

- improving the standard of living, social security and ensuring equal access of the population to the public (budget) services and social guarantees throughout the country;
- ensuring the sustainable economic development with the optimal use of fiscal and resource potential of certain areas and the country in general;
- strengthening of government and territorial integrity of the country, preventing the emergence of centrifugal tendencies and conflicts between different levels of government over the allocation and use of resources of the national budget system, the creation of conditions for the development of civil society.

Thus, the purpose of intergovernmental relations is to ensure consistency between income and expenditure in the budgets of different levels in cases when its income is insufficient to cover the necessary budgetary expenditure.

In all countries, using the principles of fiscal federalism, the scope of fiscal relations is the subject of a thorough legal study. The development of an appropriate legal framework lies in the direction of detail and comprehensive coverage of the legislative distinction between different levels of government expenditure and revenue responsibilities, as well as about the use of budgetary procedures alignment.

An essential element of social structure in many countries is the local government. Its circle of competence usually includes the implementation of the main share of social functions of the state, public safety, land improvement, promotion of entrepreneurship, etc. In recent years, local authorities received a significant level of autonomy [European Charter of Local Self-Government, etc.], and in some cases, local authorities are independent from the institutions of government.

The system of local self-governance as a fundamental element of a federal state structure is designed to provide a combination of national interests and the interests of each individual territory. Therefore developed and effectively organized local government is an essential element of the state government, allowing the latter to concentrate on solving national problems, thereby optimizing the entire system of government. Local governments carry out the implementation of local issues and the creation of conditions for the daily needs of the population. Obviously, for the effective implementation of their functions and powers the local authorities should have sufficient economic and financial base.

In modern conditions, Russia (since the late 90's. to Present) has been increasing centralization of control, including in the area of fiscal policy and the overall state of regional policy. To a certain extent it was justified in solving the most acute crisis and conduct basic market reforms. However, the current centralized model has exhausted its constructive possibilities and becomes a brake of territorial development. Preservation of this trend in the future is fraught with further intensification of existing problems in regional development. One of the most actual ways to overcome these problems is the decentralization of the budget system, including the decentralization of resources and authority, autonomy in decision-making, competition and strategic marketing.

In accordance with the above proposed we can focus on the formation of the following structure of income sources at the level of regional and local budgets [8]:

- taxes, the proceeds of which are sharply reduced during periods of economic downturn and rising in the economic recovery (for example, the corporate income tax), should be assigned to the regional budget and local budgets should get the most stable tax sources;
- taxes, the base of which are distributed unequally (taxes on some natural resources, etc.), should be fix in the regional budget;
- taxes, the base of which can easily be moved to another municipality (by re-registering the parent company, etc.) or the burden of which can be passed on to the population of another municipality (excise on vodka imposed on the manufacturer and the like), it is necessary to centralize into the regional budget;
- taxes on immobile bases, must be attached to local budgets (property taxes);
- tax revenues that directly depend on the well-being of taxpayers registered, or living in the area (income tax, sales tax on consumer goods, etc.) should be attached to local budgets;
- fees for budget services (fees, administrative fees) are due to the budget authority providing these services.

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In summary, we can state the following provisions on which to build a system of local taxation:

1. Tax revenues should primarily cover the needs of the local budget. If local autonomy is an economic and political purpose, the local authority should not, if possible, be dependent on subsidies of higher authorities. Taxes collected by the local authorities, are more reliable base of long-term planning and development, particularly in respect of costs. The system of local taxation should not be the only source of local budget. There are many unusual costs, especially in the municipalities performing the functions of regional centers, which should be compensated by subsidies for general use.

2. Local authorities should have the right to set the rates of one or two major taxes. This enables local authorities to determine their expenditure program in accordance with the desire of the population to pay taxes. The financial autonomy of local governments has the advantage that taxpayers may authorize the local authority action by voting in elections and to control the decisions and activities of the local elected officials and administrative offices.

3. Taxes should be transparent and understandable to citizens and businesses, which bear the tax burden. This transparency is a prerequisite for the efficient allocation of resources according to individual requirements. Ultimately, it allows people to “vote with their feet” by taking the decision to move on the basis of differences in local taxation, which is characteristic of highly developed countries.

4. Providing income growth and thus satisfaction of its growing needs is impossible without establishing correspondence between economic development and income from local taxes. In addition, tax revenues should not be directly linked to the cyclical nature of business activity in the territory. From a formal point of view, the elasticity of tax revenue must be equal to one. The reason for this requirement is that the ratio of costs and revenues of local authorities should be stable over time. Stabilization policy is the responsibility of the central government because of its external action and requirements for flexibility in spending and income. If there is a need to promote the stabilization policy of the local authorities, it is desirable to encourage them with grants for special purposes. Positive attitude of citizens and businesses to local authorities influences the distribution of the tax burden between the local population and the business sector, although the fear of environmental pollution often makes the local authorities to act against the creation of new industries. However, the system of local taxation should be neutral without any “drag” of the population and businesses. This rule has been called “the principle of equalization of interests”.

5. The establishment and a balance between the consumption of local services in the territory and the distribution of the tax burden are required. This equilibrium is not only has a positive effect on the distribution of resources, but also accompanied by political advantages, because the obligation to distribute the tax burden among all consumers of public services does not allow the use of certain groups through political decisions.

6. In the municipalities, roughly equal in size, the difference between the proceeds from local taxes per capita should not be significant. Otherwise, you need an active implementation of measures aimed at balancing between local authorities with a view to preventing violations of their financial autonomy. Since differences in the tax revenue are often associated with inequality of regions, the non-observance of the principle of building a system of taxation aggravates it even more.



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INNOVATIVE ASPECTS OF CLEANER PRODUCTION¹

Olga P. Burmatova²

The paper is devoted to the problems of innovations in environmental protection management. The main directions of cleaner production due to the introduction of innovative economic development principles to solve environmental problems are outlined. Particular emphasis is placed on the disclosure of the contents of environmental innovation. The author identified main difficulties in the practical implementation of innovative development in the environmental field. We also analyzed the possible effects of exposure to the crisis in the relationship between economy and ecology. We propose new financial tools for providing the attraction of investment in the long term and capital-intensive environmental projects in the conditions of economic crisis. Using the example of the Lower Angara region, the author has showed the possibility to test the exploration and development approach based on innovative principles.

MAIN DIRECTIONS OF THE CLEANER PRODUCTION DUE TO INNOVATIVE FACTORS

The formation of the innovation economy in Russia requires not only constant technological improvement, setting up the production of high-tech products with high added value, but also the change in the interaction of the state and business in a wide range of relations, including those in the environmental field. The latter is due primarily to the fact that, first, the situation is changing with the availability of natural resources, because of their qualitative and quantitative depletion, which makes the problem of their management and integrated use the urgent one. Second, in the absence of significant positive trends in environmental enhancement over the last few decades there has accumulated a complex tangle of problems, which call, in particular, for the assessment of the economic damage caused by the negative anthropogenic impact on the environment, and for the development and implementation of mechanisms for its compensation which has long been a common practice in the developed countries. Ignoring environmental damage indicators when making decisions leads to the selection of inefficient variants of the territorial organization of production and the whole of social and economic development. Third, we have to effectively solve the emerging serious environmental problems on timely basis which is possible only in the case of their permanent identification and before-the-fact prevention. All of this raises an important innovation in environmental management, including change of value criteria, the formation of an adequate institutional framework.

Particularly acute these problems are in Siberia, where the key sectors of the economy, made up mainly manufactures mineral complex, and the lower floors of energy production cycles, on the one hand, are usually among the environmentally hazardous activities and on the other hand, are concentrated in a limited number of locations, creating an increased load on the environment.

¹ This article was prepared as part of the 7th Framework Programme of the European Union FP7-PEOPLE-2011 IRSES Project № 295050 FOLPSEC – Functioning of the local production systems in the conditions of economic crisis (comparative analysis and benchmarking for the EU and beyond).

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Innovative aspects of the economy are directly related to the solution of environmental problems and the possibility of sustainable development of individual regions and the country as a whole. In this context, taking into account the current economic crisis, the search for ways out of it should be focused on the creation of conditions for the sustainable economic development.

In modern conditions of social and economic development of Russia and its regions the key challenges in the environmental field in the light of innovation development are due, at least, to the following circumstances:

1) the necessity of deliberate government economic policy focused on cleaner production, provided a systematic approach to solving problems of structural and technological changes in the economy in favor of resource-saving and environmentally friendly production, which would not only lay the foundation for an innovative economy, but also to provide both economic and environmental benefits;

2) the use of strategic planning and management in government environmental policies, as environmental problems are generally long-term and require a strategic approach to their solution;

3) the need to develop and implement new and effective tools in the field of environmental regulation, to stimulate, on the one hand, the ecological modernization of production, development and use of environmental technologies, the formation of the market of environmentally friendly products and environmental services, and, on the other hand – an environmentally responsible business behavior. Such tools should be supported both in law and in the appropriate means of implementation.

Contribution of principles of the innovative development into the solution of environmental problems is manifested first of all in the fact that the modernization of the technological base of production creates the necessary technical and other conditions for its ecologization in different directions. Among these directions affecting the environment, both directly and indirectly, we can name primarily the following [1, 2, 3, 4, 5, 15]:

1) technological innovation, accompanied by increased production efficiency, expansion of assortment and improving the quality of goods and services produced or used in this technology, the change of models and generations of technology, technological structures and technological methods of production, having one of the results link economic development with environmental protection requirements;

2) resource conservation (as one of the key varieties of technological innovation) associated with the introduction of resource-saving technologies allowing not only reduce the volume of production of various types of natural resources, but also ensuring a more comprehensive and integrated their using, one of the consequence of which is reducing the load on the environment by extractive and manufacturing industries;

3) environmental innovation, including :

- ecological restructuring and ecological modernization, providing changes in the sectoral structure by reducing the demand for polluting industries or by upgrading enterprises – consumers of such products;
- development and use of environmental technologies (in particular, the increased use of technology of the utilization waste of all kinds, recycling of resources after their treatment, reclamation of disturbed lands, etc.);
- creating ecological development, including specialized machinery, forming market of the environmentally friendly products and environmental services;
- formation of environmental requirements for the development of technologies, the implementation into the practice of environmental management systems so-called “new existing technologies”, corresponding to contemporary and relevant economic and environmental standards and regulations, and which should be an incentive for



innovative activity (especially in the sectors of energy sector, other natural resources exploration intensive industries and environmentally hazardous sectors), as it reflects the requirements of scientific and technological progress¹;

- implementation of environmental management systems in industry, which is a modern mechanism of environmental management, an internationally recognized and widely used by the vast majority of industrialized countries for more than 20 years; the presence and operation of the environmental management systems accompanied by improved environmental performance enterprise, by reducing environmental risks and costs of environmental protection, increase competitive advantage and so on;
- environmental marketing, promoting the rapid development of technologies and processes that reduce environmental impact, and accelerated formation of the market of environmental goods, which requires a corresponding development of marketing management tools;
- environmental certification, confirming compliance with the characteristics of the manufactured product to standards in the field of environmental protection;
- creation in Russia of the so-called “intellectual infrastructure” of environmental activities – licensing systems for all activities affecting the dangerous ecological situation, and environmental audits. These activities are essential tools in additional environmental control and regulation of the actual human impact on the environment in accordance with the possibilities of acceptable use of natural resources and the assimilation potential of the environment;
- ecological consulting, and others.

4) creation of eco-innovation tools, promote the development of markets for environmental services, environmentally friendly products, technologies, etc.;

5) innovation management, legal and other solutions that improve the efficiency of use of natural resources and the environment along with improving or at least maintaining the quality of the environment;

6) formation of long-term market of rights to pollute the environment by learning from the experiences of other countries that have implemented this mechanism in the practice of environmental regulation, as well as international experience in this field (in particular, the economic mechanism of the Kyoto Protocol) and then transfer this experience to the national level.

POSSIBILITIES AND RESTRICTIONS OF TRANSITION TO SUSTAINABLE ECOLOGICAL AND ECONOMIC INNOVATIVE DEVELOPMENT IN MODERN RUSSIAN CONDITIONS

The implementation of above mentioned directions of innovative development will not only significantly improve the environmental situation, but also enhance the competitiveness of domestic enterprises in world markets by improving the environmental performance of their products. However, the practical implementation of these areas faces many challenges, primarily related to the need for such a mechanism, which is primarily allowed to stimulate entrepreneurs to make the transition to the new resource-saving and environmentally oriented technologies, the implementation of which would bring tangible and economic and environmental benefits.

¹ In Russia, the implementation of the requirements of such a system were put into law by the federal law "On Environmental Protection" № 7-FL of 10.01.2002. In terms of economic methods of environmental protection, the law is important in it marked the need to provide tax and other benefits when implementing the best available technology, alternative energy sources, the use of secondary resources and waste management, etc. (Article 14). Unfortunately, this is a constructive economic situation remains declarative, as the incentives and rebates for the introduction of environmentally friendly technologies are virtually absent.

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In the Russian context this innovative mechanism has not yet been formed, so we must begin from scratch, skillfully combining both incentives and sanctions to environmentally irresponsible businessmen. This supercomplex task that requires a fundamental change in the existing trends in the economy (immediate transition to the quiescence of innovative development.) and, most importantly, a change in mentality, first of all, the ruling elite, as it is related to a need for a national level of innovation-oriented environmental strategy of the social and economic development and the development of an appropriate environmental and economic policies.

Turn towards sustainable ecological and economic innovative development in modern Russian conditions is constrained by the action of a number of factors, the main of which are well known. These include, in particular:

- preservation mainly raw nature of the economy with predominance of fuel and energy, metallurgical and forestry sectors as well as the nature of natural-resource exports, and in conditions of exhaustion of many kinds of natural resources as a factor of economic growth;
- high level of nature intensity of production (including energy), which tends to a constant increase (now in Russia the cost of natural resources per unit of GDP is 2–4 times higher than those indicator of developed countries);
- the absence of significant structural changes, leading to a decrease in the proportion of extracting and polluting industries;
- absence of economic and legal barriers to the functioning of dirty technologies, due primarily to the satisfactory state environmental policy, primitive economic mechanisms in the field of environmental protection;
- considerable wear and tear of equipment, estimated for various industries in the 60–80 percent or more, thus constantly increasing the potential environmental risks associated with its use and the risk of accidents due to the lack of technical and technological reliability of decision-making;
- unfavorable ecological situation in many parts of the country, which has a negative impact on human health and the duration of their life (according to WHO estimates, the share of environmental contamination in the formation of people's health is about 20%, in Russia the contribution of environmental factors in the morbidity and mortality in most regions country for at least 2-fold higher);
- environmental problems accumulated over decades, which are often exacerbated by problems encountered in recent years (including as a result of a weakening of state control and hasty privatization of property) and will require a mechanism to eliminate them and compensation for the damage that has to be one of the tasks of the state.

Reverse these negative trends prevailing possible only when takes place the transition to an innovative economy and technological modernization. This transition will be accompanied by large-scale solution of the ecological problems, which will not only reduce the amount of human impact on the environment, to prevent the exhaustion of natural resources and rationalize their use, but also significantly improve the environment of people, creating the conditions for reducing the negative impact of pollution on health people and increasing life expectancy.

Given the strategic interests in environmental innovation should focus primarily on:

- 1) orientation to achieve the desired practical results in the improvement of the environmental situation;
- 2) control of the environment as one of the essential elements of state regulation in the sphere of nature management;
- 3) creation of stimulating effects for environmental investments;
- 4) strengthening of coordination and cooperation of all interested parties under the auspices of the authorities at all levels.

POSSIBLE CONSEQUENCES OF THE INFLUENCE OF THE CRISIS ON THE RELATIONSHIP BETWEEN ECONOMY AND ENVIRONMENT

Modern crises are making significant features in the relationship of the economy and the environment. Impact of the crisis on the state of affairs in the environmental field is usually two-fold, causing on the one hand, environmental degradation, and on the other hand – its relative improvement, allowing to reduce the load on the environment (Figure 1).

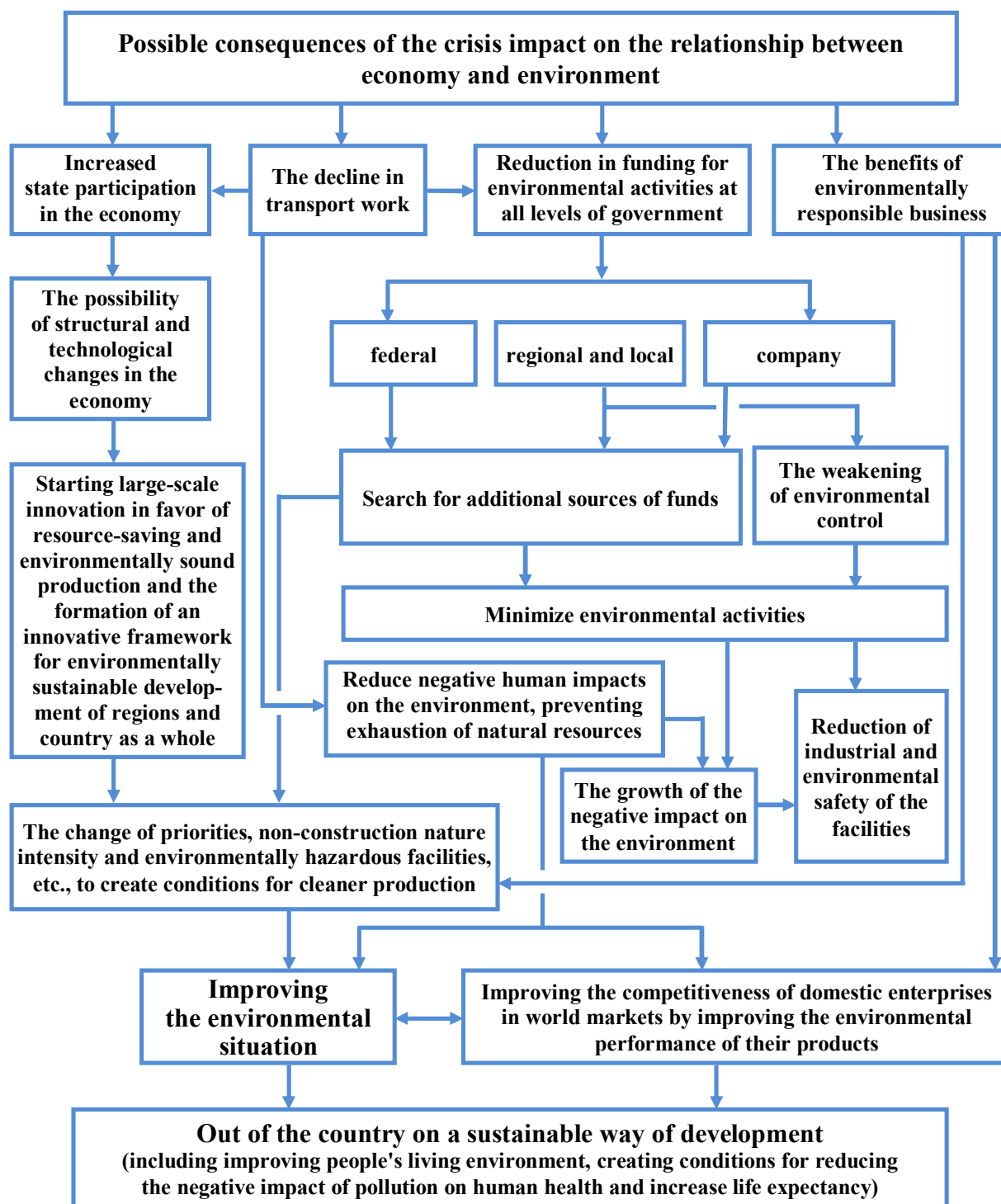


Fig.1. Possible consequences of the crisis impact on the relationship of economics and environment

Decline in production, reduction of transportation leads to a reduction in emissions and discharges, as well as reduced energy demand, which in turn leads to a decrease in revenues of carbon dioxide and mitigate the greenhouse effect.

However, such a reduction in environmental impact is temporary and, as experience shows, as the crisis pressure on the environment not only restored to the same level, but, as a rule, much stronger. This occurs, in particular, because of the desire of enterprises during the economic crisis, to reduce production costs, saving on all reflected in the reduction of industrial and environmental safety of the facilities. In addition, during the crisis of power, especially in the local level, local authorities often mitigate environmental requirements in relation to individual producers and generally weakened control by the environmental authorities. As a result of the ecological situation in the region is usually much worse.

The decline in production is accompanied by a decline in the financial resources from the producers, forcing companies to seek out additional sources of internal funds. This is most often seen in curtailing environmental activities, as it is not directly involved in the main production process and the company will first try to save on the environmental costs, which leads off environmental equipment, saving on electricity, expensive reagents, etc. This was shown by the experience of the crisis of the 1997–1998's in Russia, when the reduction of environmental pollution was far inadequate drop in production, and in some cases there was a marked deterioration of the environmental situation.

During the crisis, reducing the cost of environmental protection is specific not to the production level, but also to all levels of territorial administration – from federal to local, leading to partial or complete curtailment of environmental programs.

Along with this economic crisis generates and some opportunities to solve environmental problems [1, 2, 4, 15]. First of all, participation of the state in solving economic problems increases and thus the opportunity for radical structural and technological change, the transition from resource-based economy to an innovative environmentally sustainable economy are appeared.

Reduction of financial resources at the federal level may force the authorities to review the energy policy of the country and abandon the expensive and environmentally hazardous projects for the construction of new (often highly questionable in terms of their economic and environmental studies, and did not pass most of the state environmental expertise) hydro- and nuclear power plants, as well as the implementation of many other nature-large projects.

The structural transformation of the economy requires significant investment and time to implement them. The action of the Russian government to rescue the major energy and metals companies shows not only the consolidation of the commodity nature of the economy, but also leads to a shortage of funds for investment in the modernization and diversification of production. As a result, instead of the formation and development of high-tech industries and, as a consequence, the reduction of environmental pollution and waste of natural resources, we will have the opposite effect.

The consequences of economic crisis in Russia, especially in Siberia, the impact on the ecological situation faster and stronger, if a significant missed opportunity to modernize production, which resulted from new technologies industry can become the new “environmental” track. However, one cannot ignore the fact that in today's crisis, the Russian company in the search for additional sources of finance is not on the way to finding the best technical solutions, and cost savings, and especially the environment. Therefore, it seems that the appeal of the country's leadership for Russian companies to exploit the situation to the modernization of production (including environmental) is unlikely to be heard by them, and after the crisis should expect any significant increase of human pressure on the environment.

In keeping with today's financial crisis is problematic to expect a radical change for the environment for the better. It is also important to consider that environmental problems require, as a rule, long-term solutions, which focus on the crisis reduced.

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An important aspect of financial support environmental measures in times of crisis (and not only) is that the lack of funds to main production activities pushes aside everything else, first of all, the environment. At the same time, environmental protection measures, as long-term, require long-term investment for a fairly large investment lag when payback not only requires long periods, but it cannot be achieved at all (for example, under the existing criteria of investments, ignoring usually economic damage from pollution).

Under current conditions in Russia of the functioning the financial system, when one of the biggest problems is the lack of funding so-called “long” money (i.e. funds to banks for more than one year), environmental sphere remains outside the immediate interests. One solution to this problem is to use these new financing mechanisms, as collective investors (mutual funds), as well as syndication and bond issues [6]. The advantages of these sources of funding are, first, their low cost compared to commercial loans, and second, their big attraction for investors through the use of new technologies, the effect of participation, transparency, operating international reporting systems, improve the quality of products and services and ensuring the environmental safety of the production.

In the end, what environmental scenario would have the best chance for the implementation will largely depend not only on the legislative and regulatory support, forming an effective economic mechanism of environmental regulation, and many other conditions, but also the political will of government officials, their real steps on the use of modern situation for the modernization of the economy. It should be added that in today's market the current level of environmental protection and resource saving technologies and determines the competitiveness of the Russian economy in the world (or rather, its lack of competitiveness). At the same time, the increasing demands for environmental quality and safety of products, the transition to the integration of environmental parameters of the technologies used for the production of products, is one of the important directions of increasing international competition.

Environmental innovation development can not only gradually reduce the level of negative human impact on the environment, but also bring benefits of environmentally responsible business (which requires the establishment of appropriate economic rules of the game), contributing to the overall output of the country on a sustainable path of socio-economic development. In turn, the choice of the ways out of the crisis give a chance and allows the state to conduct structural and technological restructuring of the economy in favor of resource-saving and environmentally safe production and establishment of an environmentally sustainable and innovative development of the country and its regions. One of the conditions for successful development in this direction and to achieve good environmental situation as a necessary element of a decent quality of life and health is to ensure coherence of the regional government, business and the public in the field of environmental protection.

Contemporary crisis showed that the state must be present in the economy, not so much as an owner, how much and above all as a regulatory and guiding force. It is not only the failure of the market, the need to internalize the external effects, including those related to environmental pollution. Launch large-scale processes such as modernization and innovative transformation of the economy by government forces only.

In general, the problems of modernization the Russian economy faces require a change of value criteria for a wide range of relations, including those with the natural environment. Thus, confining to only technological aspects upgrade seems unpromising without creating appropriate institutional environment, one of the elements of which is building relationships with natural environment. A new paradigm in the field of environmental protection, based on the concept of sustainable development, proceeds from the awareness of the need to reject consumer attitude towards the environment and building a partnership with her. Environmental and economic consequences of such a partnership, arising from the consistency of the coexistence of natural, technical and human capacities

are obvious. It is not just about the transition to resource-saving and environmental-oriented technology with all its consequences for the economy, the environment and humans, but also the formation of an environmental ethic, respect for the natural environment, the strengthening of the principles of eco-efficiency and environmental justice.

In other words, it is necessary a change in the criteria, the formation of an adequate institutional framework, without which the modernization of the economy is doomed. Institutional reforms should be aimed at creating a new and better legal and economic mechanism to regulate the interaction of different levels of government and natural resources, subject to the mandatory inclusion of environmental requirements in the procedure for assessing the socio-economic benefits of management decisions.

IMPLEMENTATION OF THE INVESTMENT PROJECTS IN THE REGION OF NEW ASSIMILATION (IN THE CASE OF THE LOWER ANGARA AREA IN THE KRASNOYARSK TERRITORY)

All these problems are particularly pronounced in the implementation of new investment projects in pioneer areas. An example of this type is the region of the Lower Angara area in the Krasnoyarsk Territory. The region is one of the most promising to attract major new investment in Russia. The main reason for the attractiveness of the region is the presence on its territory of diverse and often unique in quality and scale of energy and raw materials, including ferrous, non-ferrous and precious metals, hydrocarbons, various non-metallic materials, forest, water and hydropower resources. The important role played by the previous work in the form of constructed Boguchansk hydro-power station (launch of which was implemented in 2013) and certain infrastructural development. In particular, there are two railway access to the region (Achinsk–Lesosibirsk and Reshoty–Karabula), built railroads Karabula–Yarki, built bridge across the Angara, highways, including Kansk–Kodinsk. Mention may also be available projects Ust-Ilimsk connection with Lesosibirsk as part of the North-Siberian Railway.

All these advantages of the Lower Angara region have led to the development (dating back to the Soviet period) integrated development projects in the region [7, 8, 9] up to now realized in the investment project “Integrated Development of the Lower Angara area” [10, 11]. In this latest project is essentially a fragment of the Lower Angara Federal Target Program (FTP) of development [9], limited to the first stage (2006–2012) by mainly Boguchany industrial hub (Boguchany hydro-power station, aluminum plant and pulp and paper mill). There is no doubt that the great advantage of the initial phase of development of the region is the establishment of a number of large infrastructure projects. In the longer term (the second stage – 2013–2020) is proposed to build new enterprises in the industrial hub Kodinsk (Tagara mine, cement factory) and in the Boguchany node (gas processing and petrochemical plants). New productions are planned in the area Motygino (Gorevsky mining, Motygino hydro-power station). The second phase of development of the Lower Angara region is mainly due to the development of oil and gas fields of the East Siberian oil and gas complex (in the southern Evenkia) and therefore, except for a few industries and transport and energy infrastructure, in the spatial aspect this phase is beyond the bounds of most Lower Angara Funding requirements of this phase is estimated at 540 billion rubles. Note that the current state of the region is characterized by low levels of economic development, investment crisis, mono orientation (timber industry), high share of the shadow economy, sustained emigration and unemployment.

Investment project “Integrated Development of the Lower Angara area” is the largest project in Russia, implemented in the post-Soviet period. The mechanism of its implementation is based on the principle of public-private partnership. Financial support by the state from the Investment Fund of the Russian Federation on co-financing and is aimed at the creation of large transport and energy infrastructure, which should contribute to the strengthening of the industrial potential of the region. In this case, 55.2% [12] of funds required for the project is provided by Vnesheconombank.

Describing the investment project as a whole, it should be noted that in it, in particular, there are no such important features as the complexity of the development of the area from the point of formation and functioning of the basic sectors of its economy in relation to the social and environmental impacts, coordinating the establishment and operation of all facilities on territory, the desire to build an innovative development model with the constant adaptation to the demands of STP, the formation of local infrastructure, taking into account requirements of environmental protection and restoration of natural resources, solving complex web of social problems, aimed ultimately at improving the lives of people, the ability to use available natural resources in the interests of not only large companies, but also people living in the region (and in general in the context of sustainable development – in the interest of present and future generations), etc.

As in the previous design, and present an investment project completely insufficient attention to environmental issues, including those related to the creation of the water reservoir and the compensation of damage, including the lack of science-based predictions of long-term effects of reservoir water quality, ecosystems the Angara river and most Boguchany reservoirs and assess the accumulation of toxic substances in the water and on the bottom of the reservoir. This project continues the current practice hydropower construction when focusing water works, and everything else is considered as minor and insignificant. Remains outside of the project and a connection problem in one place environmentally incompatible large-scale productions (it is primarily on the placement site in Boguchany aluminum and pulp and paper mills).

At the same time the assimilation of the Lower Angara requires a considered approach providing its development from the standpoint of integrating economic, social and environmental priorities through the development of high-tech production, creating energy efficient and environmentally friendly enterprises. This will determine, as will the development of the area in the long term – will it remain mostly raw (limited only by the lower floors energy-production cycles) and emphasis will be placed not only on the integrated development of the area on a “hydroelectric station – aluminum plant” or “forest, water – pulp and paper mill”, but also to diversify the economy as a whole, creating the conditions for long-term sustainable development. In this case, the focus should be not so much about mining as the development of processing industries, building the upper floors of energy-production cycles, production of products with high added value and competitiveness in domestic and international markets. Location of such facilities may be in some cases, not in the Lower Angara region, but in the more southern areas of the Krasnoyarsk territory.

In considering the views of the Lower Angara region could become a model region to test the approach to assimilation and development based on innovative principles.

Among the factors contributing to the need to go to the region with the technologically advanced industries, an important place belongs to the specifics of local environmental conditions in the region, making a significant contribution to the formation of the ecological situation. The Lower Angara area has a low potential for assimilation, which is due, first, to unfavorable (high) potential contamination of the atmosphere (Lesosibirsk and Kodinsk areals have the worst conditions) and, second, to the low self-cleaning capacity of surface waters and, therefore, adverse conditions for the oxidation of organic matter, and already achieved a fairly high level of water contamination by organic (in particular,

phenols, oil products and other organic substances). This is compounded by the creation of reservoirs and a violation of the natural hydrological regime of the river Angara. Self-cleaning ability of the Angara has to date largely been exhausted, and a number of pollutants (such as suspended solids, phenols, petroleum products, etc.), water quality does not meet the required standards, which, in turn, imposes special requirements for basic and environmental technology planned in the region of production. Add to that already developed quite a high level of background contamination of the aquatic environment in Boguchany and Kodinsk, on which much of human pressure as a result of the investment project.

Equally important is the choice of capacities for the enterprises of the region. The planned power Boguchany aluminum plant 600 thousand tons per year does not correspond to international practice, as maximum power aluminum smelters in the world of 200–250 thousand tons per year, and is now close to 190 thousand tons per year [13, 14]. Moreover, the ecological incompatibility of aluminum production process and technological cycle of the pulp and paper may lead to the risk of recurrence by Boguchany of the sad fate of Bratsk, where the creation of such a super power resulted in the death near the town of pine forests.

In general, low regenerative capabilities of the natural environment of the Lower Angara region impose strict requirements for production technology. This includes both the technology (the main production technology) and environmental innovations (environmental protection measures, etc.). Only under these conditions can raise the issue of the creation here of the economic complex in general, and in the targeted structure of production and their capacities in particular. And there must be not only a priority of advanced low-waste technology for the primary production of the objects, but also to conduct a variety of conservation measures to ensure comprehensive coverage of all sides of human impact on the environment, including the use of the opportunities of the industrial location and the territorial organization of the productive forces, waste management, the choice of different options technologies of neutralization of pollutants and their combinations, etc.

Thus, the specificity of the region is such that its exploration and the formation of the production and spatial structure of the economy will require the development of adequate innovation policy. Such a policy should be formulated as the “bottom” (at the level of individual objects), and the “top” (at the level of the federal government and the Government of Krasnoyarsk territory).

Among environmental innovations, in the first case, first of all, should be noted the development and use of eco-oriented technologies, including the organization of waste management, the introduction of environmental management systems at industrial plants, environmental certification, the formation of environmental marketing, etc.

In the second case – the consideration of structural features of interest and opportunity of the region's economy in the long term (which require a refusal from raw materials scenario), creating tools eco-innovation activities with a focus on encouraging the introduction of environmentally friendly technologies, the formation of the environmental requirements for the development and continuous improvement of technology, the development of systems for licensing of all activities affecting the dangerous ecological situation, restoration institute environmental expertise, implementation of environmental audits, etc. The solution of many of these problems could contribute to the transformation of the investment project in the federal purpose-oriented program.

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FINANCIAL ASPECTS OF ENVIRONMENTAL REGULATION¹

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The paper is devoted to the problems of formation of the financial mechanism of environmental protection in the framework of local production systems. The authors identified main sources of costs for environmental purposes and analyzed the trend of reducing the fiscal costs of environmental protection. Particular emphasis is placed on the legal aspects of the use of payments for negative impact on the environment, including the abandonment of the use of funds to the budget as the price of a negative impact on the environment. The importance of environmental funds in the financing of environmental activities is shown, the importance of programmer - oriented approach to solving environmental problems is marked. The possible elements of the financial mechanism for the implementation of environmental protection measures are proposed. The main difficulties including stimulating effect in the economic mechanism of nature conservation and environmental protection are marked.

Local production systems (LPS's) are territorial-industrial combinations, which are characterized, first, by the presence of its own economic capacity for self-development of the territory and ensuring its competitiveness. Only in this case, there are preconditions that are necessary for the progressive modification of the production and spatial structure of the economy within the limits of LPS, for the growth of their level of economic development and creation of conditions for social prosperity could be possible.

Secondly, LPS must have an efficient management system, in which economic complex of the area, its social services and the natural environment are considered as control objects. With this as the subject of management can act the public authorities, local governments, and special management bodies for the implementation within the LPS's of any long-term projects and programs. Management of local production systems should be understood as an activity to regulate the processes of socio-economic development of the area in accordance with a pre-designed program and aimed at achieving the goals of improved quality of life. Under conditions of economic crisis, an important task of management bodies is to create tools to encourage the output of the region's economy of the depression and the providing conditions for development. Obviously, the development of regions, surviving depression and their further prosperity should be stimulated by the authorities.

Third, the LPS's are characterized by the existence of various public (government) and private institutions that perform, in particular, the various functions for the provision of educational services and training, research and implementation of innovation, securing funding, and others.

¹ This article was prepared as part of the 7th Framework Programme of the European Union FP7-PEOPLE-2011 IRSES Project No. 295050 FOLPSEC – Functioning of the local production systems in the conditions of economic crisis (comparative analysis and benchmarking for the EU and beyond).

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Thus, the formation and functioning of LPS depends on many factors, including:

- economic (economic and geographical situation and the level of infrastructural development of the territory, transport, energy, innovation policy, the investment policy and territorial forms of social organization of production, etc.);
- social (including human capital, labor, employment, social protection of the population, the demographic balance, etc.);
- environmental (natural-resource potential, ecological potential, human impact on the environment, etc.);
- institutional (legal system and rule of law, judicial system, scientific and technical, financial and investment aspects, the system of governance, the system of market infrastructure, including credit and financial and other aspects, the system of education and science, cultural and religious values, etc.).

One of the important aspects of the study of the LPS's is to provide reliable financing process of their operation. In this article, we will focus on the problems of the formation of the system of financing environmental activities typical of the different levels of government, including the level of the LPS's.

In the field of environmental protection level of the local production systems is concentrating financial resources of various origins – from state allocations of funds to individual industries and companies – sources of pollution.

The main purpose of the economic mechanism in the field of the environmental regulation is not only providing accumulation of funds and compensation of expenses for environmental protection, but also (it's more importantly) stimulation of environmental activities, strengthening of the economic interest of industrial facilities in the rational use of natural resources and reducing pollution, in the organization of waste management and the use of secondary resources, etc. One of the important elements of the mechanism of the state environmental policy is the funding system. From as far as it is reliable and effective, depends largely on the state of the environment in the country and its regions.

Financial mechanism of protection of the environment is a complex of various financial and economic instruments aimed at promoting of environmental measures. These levers include an environmental tax policy, the system of payments for natural resources and negative impacts on the environment, environmental insurance, improving pricing for the products of industries that exploit natural resources, and other environmentally oriented industries, especially for environmentally friendly products and technologies, etc.

The purpose of the financial mechanism for the protection of the environment is to improve the environmental situation in the country with minimal material, financial and human resources through the provision of favorable economic conditions for environmental activities of the enterprises and industries. It is clear that the financial mechanism of nature management in any country reflects conducted by the state environmental policy.

To achieve these objectives it is necessary first of all to solve the following tasks:

- enhance the role of budgets of different levels of funding environmental programs, environmental activities and environmental government agencies; improve the system of public environmental funds;
- implement of the system of environmental taxation and compulsory environmental insurance schemes;
- clearly define the sources of funding for environmental activities between the company's own funds, extra-budgetary and budgetary sources, as well as to ensure the reliability and sufficiency of the funds in the market conditions.

In countries with developed market economies with typically a significant advancement in the field of environmental policy, the hallmark of the existing system of environmental management is the use of economic regulators to promote environmental management while maintaining and strengthening the state and public control and regulation in the field of environmental environment.

Economic methods of environmental regulation include a set of measures aimed at changing the attitudes of economic actors in a direction of changing favorable to the state of natural resources and the environment, by affecting the cost and benefits of the various options that are available to participants of economic activity.

The main purpose of economic methods is primarily in providing incentives of the environmental activities primarily through the introduction of environmentally friendly and environmentally sound technologies, and to find ways to minimize the economic costs which will be incurred by the company in order to achieve the desired state of the environment and its individual components.

Financing environmental measures in developed countries is both at the national and at the regional and local levels through national budgets, expenditures of regional and local authorities, facilities companies and enterprises. The main sources for expenditures for environmental purposes, as a rule, the government grants, loans, and loans with interest, fees and penalties for discharges and emissions, administrative fees, costs of environmental nature, payments for the use of natural resources, grants from the state and other tools (Figure 1).

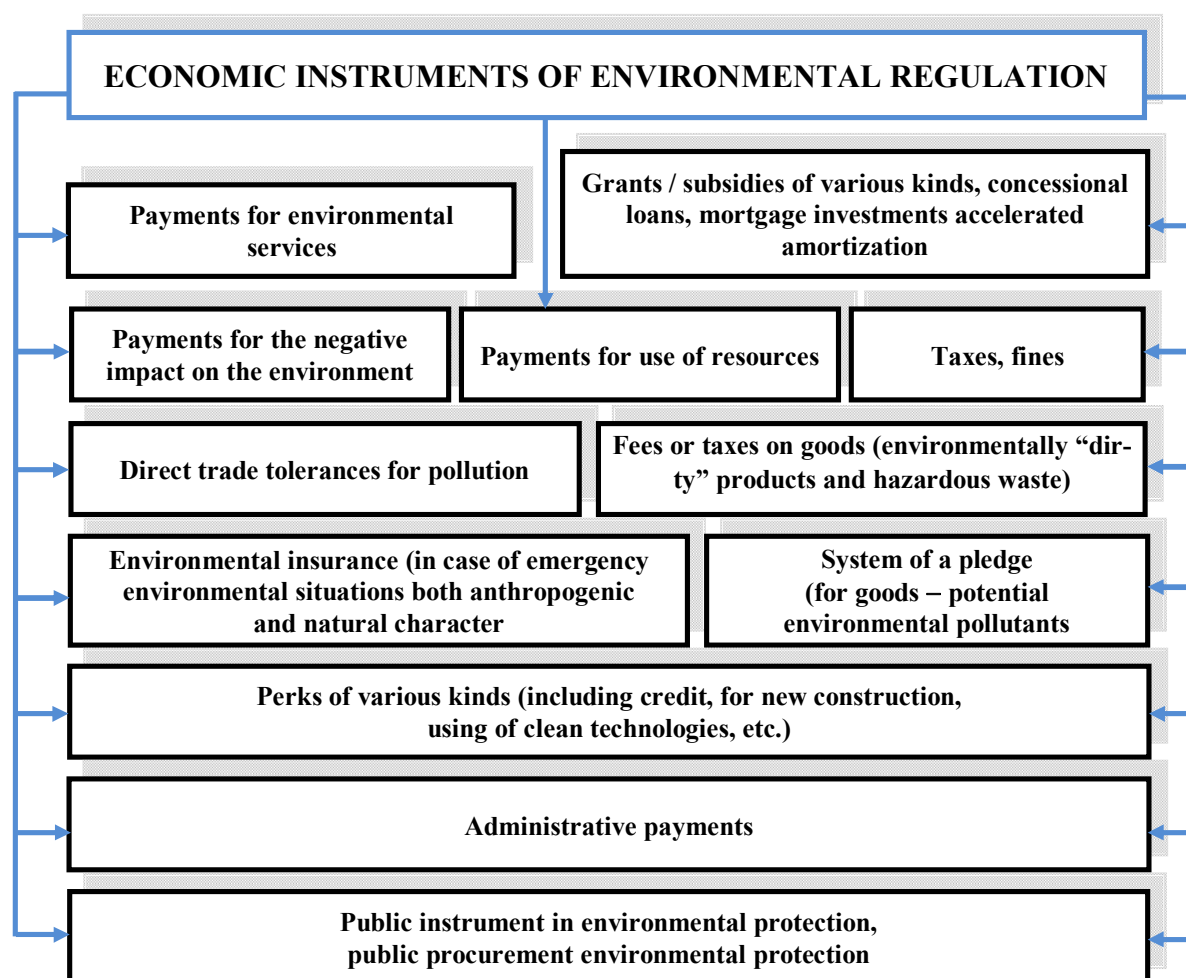


Fig.1. Tools of the financial mechanism of nature management in developed countries

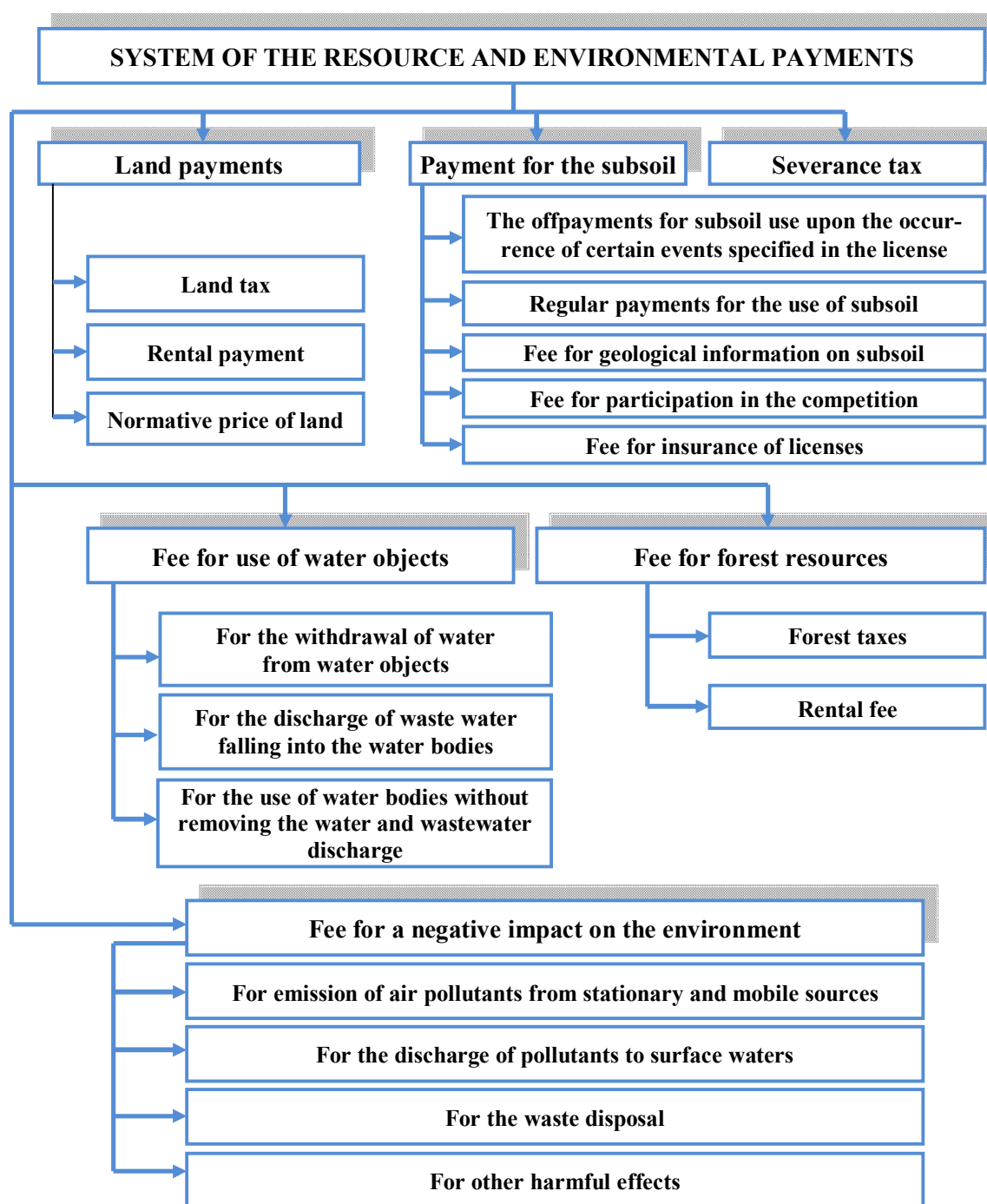


Fig. 2. Resource and environmental payments in the Russian Federation

In this case, the experience of developed countries shows that the focus is increasingly on not restrictive measures and punishment, but rewarding the efforts of those natural resource users whose economic behavior is to create the most favorable environment.

The existing financial mechanism of environmental protection in Russia is fragmented and consists of individual structural units. It consists of the following subsystems:

- financing of measures on the protection of the environment;
- forecasting and development of environmental programs;
- environmental pricing and taxation;
- payment for natural resources and environmental pollution;
- environmental insurance, etc.

Despite the importance of these sub-systems in environmental financing the degree of development and practical use of them is different, some of them have not yet been properly developed. To date, the basis of the mechanism of financing environmental protection constitute the payments for natural resources and payments for negative impact on the environment, including payments for emissions of air pollutants, water pollution, disposal of waste production and consumption, contamination of the subsoil and soil, etc. (Figure 2).

The introduction of charges for the use of natural resources and pollution of the environment in the Russian Federation was the result of changing relationships in the field of the nature management in connection with the transition to market economic principles. In this regard, one of the tasks of the national environmental policy is the organization of the work to ensure compliance with the principle of payment for environmental management. However, this principle does not always adequately reflected in the legislation on taxes and fees, which affects the receipt of resource payments to the budget of the country.

The implementation of the financing of environmental programs and environmental activities in the Russian Federation provides the possibility of using financing different sources, whose role varies. Among these sources, we can identify: budget funds (federal, regional and local budgets); funds of enterprises, institutions and organizations; environmental funds; environmental insurance funds; bank loans; voluntary contributions of the population; foreign legal entities and individuals, and other sources.

In general, the current Russian system of environmental financing is far from perfect and can not boast of any extensive array of different instruments and techniques, no significant grants from.

Since the early 90s there is a tendency to reduce budget expenditures for environmental protection in Russia. So, in 1995, for this purpose has been allocated 0.6% of the expenditure side of the budget, in 1996 it was 0.5%, in 1997 – 0.4%, in 1998 – 0.5% 1999 – 0.87% of the expenditure side of the federal budget.

The last decade government spending on the environmental protection was scanty value being in the range from 0.14 to 0.2% of total federal spending. In the federal budget for 2011, the costs of environmental protection are provided in the amount of 14.5 billion rubles. It corresponds to 0.14% of the total expenditures or 0.03% of GDP (compared to developed European countries, the level of environmental costs estimated in the range of 4–6%, in Japan – more than 8% of GDP) [1–3].

At the 2013 budgetary allocation for environmental protection in the Russian Federation are expected to reach 16.7 billion rubles or 0, 12% of the expenditures of the federal budget, which corresponds to 0.02% of GDP.

The plans of the Government of the Russian Federation is scheduled to increase to 2023 the share of the costs of environmental protection to 0.3% of the expenditure side of the federal budget, the problems, of course, does not solve. According to environmental experts, only to stabilize the environmental situation is required at least 2.5%, and for improving the situation need the facilities in the amount of 4%.

In 2000–2001 was liquidated Federal Environment Facility and, although formally environmental funds of the subjects of the Federation (regional funds) and district (municipal and local) environmental funds are not abolished, but their activity in the majority of cases declined. Thus, the environmental activities lost, though relatively small, but reliably collected target means at the federal, regional and local levels.

The final blow to this source of funding caused the collapse of the system of payments for environmental pollution due to environmental funds were formed. At the same time, through a system of environmental funds has financed provision by equipment Inspections of analytical control, works on environmental monitoring, environmental research, environmental education programs, support of the reserves and other protected areas, a publication of environmental literature and other kind of environmental practices. Upon destroying

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a system of environmental funds, these activities ceased in the vast majority of subjects of the Russian Federation.

In addition, under the conditions of Russian flexible mechanisms of environmental financing in the form of a market for pollution rights, environmental risks insurance and others is not being used.

In general, the existing system of government target environmental funds justified itself and, in our opinion, it is necessary its recovery. Means of such specialized funds could be one of the sources of funding of federal programs in the environmental field. Today, there is a reduction of funding and the closure of federal target environmental programs.

The abolition of federal target programs that have been funded primarily from federal and regional budgets (for example such as «Revival of the Volga», «Ecology and Natural Resources of Russia», «Waste», «State support of state natural reserves and national parks», «Protection of Lake Baikal», «Security and Development of Nuclear energy», «Energy Efficient Economy», etc.) has led to a decrease in the targeted budget funding for corresponding directions in the areas of environmental protection, which should be under constant supervision and care of the state. Since 2004, in the country is not realized none environmental program. Despite the fact that the current in the Russian federal target programs for the most part ineffective, and a number of them exist only on paper, under the closure were determined primarily environmental (or connected with protection of the environment) programs. This once again demonstrated setting the priority of the economy over the environment.

In the budget for 2013–2015 among federal target programs there occur only two environmental – Federal Program «World Ocean» and «Protection of Lake Baikal and the socio-economic development of the Baikal natural territory for 2012–2020». The share of program-oriented approach to solving environmental problems during this period is only 13–15% of the budget allocation.

Another important issue is connected with the fact that there is still the issue of payments for negative impact on the environment is not regulated in legal terms. The relevant law has not been adopted so far, although its necessity follows from the federal law «On Environmental Protection» 2002. The current system of environmental payments, not having the necessary legal framework, essentially exhausted itself and is now playing a purely symbolic role – especially because of the exceptionally low base rates. Although in the 1990-ies the system is practically and did not perform a regulatory function in the part of the capital environmental costs (due to the economic crisis and the difficult economic situation of enterprises), but it is done quite well with that function in the part the current activities of enterprises and served fiscal function. Now, this system of environmental charges is based on the extremely low base rates (approximately 10% of the rates taken in Kazakhstan, Belarus, Moldova, Georgia, and only about 2% of the rates acting in most countries of the European Union). That does not stimulate enterprises to implement environmental activities.

It should also be noted, and such, in our view, an extremely important moment (again, who had a negative impact on the environmental sphere) as a rejection of the use of funds incoming to the budget as payment for pollution. If, before the adoption of the new Law «On Environmental Protection» in 2002, the card was designed exclusively for the purpose of restoring damaged environment, which was confirmed in the previous federal law «On Environmental Protection» of 19 December 1991, then after the cancellation of the last and adoption of the new law regarding the prohibition of the use of payments for pollution of the environment for any purpose, other than environmental, disappeared.

Later, a similar approach was used in making new versions of the forest, water and other codes and federal laws. As a result, the sphere of environmental protection in Russia, has always funded at an unacceptably low level, and lost what little that was. According to Ministry of Economic Development of the Russian Federation, currently the payment within the standards for emissions (discharges) of pollutants and waste disposal is only 0.04–0.05% of the cost of industrial products, which actually imperceptibly as stimulating factor or punishment for environmentally hazardous activities.

Apart from the aforementioned shortcomings of the system of payments for negative impact on the environment, the practice of using them also showed that the set of substances for which payments were set far from complete. Besides that, there are major flaws with the point of view of the inflation factor: the value the correction coefficient is incomparable with the actual rate of inflation. As a result, the system of payments for negative impact on the environment, that is intended to be used as one of the sources of financing of the environmental sphere, and also to some extent, encourage enterprises to implement environmental protection measures, in reality (as a result of successive emasculating its essence) does not perform any fiscal or regulatory, much more stimulating, functions. The value of environmental payments should be such that not only create strong incentives for effective environmental management (and thus for the introduction of resource- and energy-saving technologies), but also be compatible (in terms of technical and technological feasibility of attainability of ecological and economic parity) with the conduct of economic activity in all sectors of the economy. In addition, these payments must receive sufficient funds to provide targeted funding for environmental protection.

Not correspond to the actual economic assessment and prevailing in the Russian system of payments for the use of natural resources. The level of these payments artificially low, and significantly (at least one order of magnitude), which proves ineffective implementation by the state the function of owner of the natural resources when huge part of the revenues from natural resource passes by budget.

In light of this, it seems necessary, first of all, the widespread introduction and development of the following elements of the financial mechanism for the implementation of environmental measures [4, 5, 6, 7, 8]:

- establishing tax privileges for environmentally responsible companies who outsource production to the best available technology (in particular, this may be exemption such enterprises from value-added tax (VAT) for a period of technical and technological re-equipment of fixed productive assets, ensuring resources saving and environmental safety of functioning production, etc.);
- the establishment of higher taxes for environmentally dangerous products and kinds of activities;
- preferential lending (for example, on the creation and implementation of new resource-saving and environmentally friendly technologies and equipment);
- accelerated amortization of the fixed productive assets of the environmental appointment;
- establishment of price premiums for green products or for the use of environmentally friendly equipment, etc.;
- introduction of various kinds of payments that could perform stimulating, compensatory, punitive functions, as well as regulatory, above permitted standard and other functions.

Use of regulators to encourage the greening of production, transition to the advanced technology, requires of modernization of tax and budget legislation. It is absolutely necessary to establish clear understandable rules for investors, for producers who, planning any economic activity, will clearly understand what would be the economic and administrative

implications of the lack of attention to the environment. Require as well a revision of penal sanctions for environmental offenses, the level of which is now so low that companies simply ignore environmental requirements. The problem consists first of all in the fact that on the one hand, to generate interest of business in environmental activities (including through the modernization of production and the introduction of new technologies, environmental innovation, etc.), and, on the other hand, environmental violations should be strictly followed the rigid responsibility, with using the appropriate penalties. In this case, success is possible only under condition of achieving a balance between sanctions for environmental violations and receiving the benefits of environmental activities. Greening the tax system will give an additional impetus for conducting the structural and technological policy, in particular, for the transition from the use of natural materials to using recyclable materials and waste.

Of particular note is the problem of development of economic mechanism of stimulating rational nature management and environmental protection, promotion and support of environmentally responsible business. As already mentioned, formed in the Russian mechanism of the environmental regulatory does not have a stimulating effect. This is manifested, in particular, in the imperfection of estimates of taxable base of using natural resources, including low interest rates of the payment for the use of natural resources and the restoration of natural resources; at extremely low base rate payments for negative impact on the environment; in unjustified reduction in the payment rates for the use of natural resources and their reproduction by individual of natural resources users; in an underestimation of the value of natural resources, the substantial absence of payments for re-use of collateral and natural resources.

Without the development and implementation of the relevant elements in a system of levers and methods of management a shift towards active transition to resource-saving and environmentally friendly technologies can not be achieved [9].

It's necessary the direct economic interest of business in solving environmental issues and the state's task – to create this interest, to support resource-and energy-efficient technologies and products, including through the introduction of market regulators in the field of environmental protection, which would stimulate enterprise actually reduce anthropogenic pressure on the environment, introduce modern resource-saving and environmentally friendly technologies. Business needs to understand that environmental protection – is not only an additional burden on the budget of the companies, but also one of the conditions to improve product quality, increase its competitiveness in world markets.

It is clear that the transition to eco-oriented technology – an extremely complex process that requires not only a huge time and money, but also the political will of the government. Such a transition is impossible without adequate serious preparation for the implementation of measures, including legislative and regulatory support, development of new technical and technological solutions, creating an effective economic mechanism of environmental regulation, etc.

In general, formed to date, financing in the Russian in the sphere of environmental protection (including budget) does not provide sufficient economic mechanism of respect for the right of citizens to a healthy environment. At the same time, environmental goals can the only really be prioritized and effective when for their achievement will be allocated prioritized resources.

Formation of adequate funding environmental sphere, that is necessary for the implementation of the strategic directions of environmental activities in the regions of Russia, requires, in our opinion, the realization of such measures as:

- attracting investment in environmental protection, especially at the expense of own funds of the companies;

- increasing the share of equity of the enterprises in activities connected with the natural resources conservation, a clear delineation of the sources of funding for environmental protection between the company's own funds, extra-budgetary and budgetary sources;
- improvement of environmental fees and charges for the use of natural resources,
- effective use of the federal budget;
- increase of funding for interregional environmental measures from the federal budget as a co-financing;
- strengthening the role of regional budgets in financing environmental programs and environmental protection measures, the increase in the regional budgets funds for environmental protection;
- increasing investment activity in the resource-saving technologies;
- securing long-term bank loans, introduction of a mandatory environmental insurance for a number of potentially hazardous industries and technologies, etc.

In order to facilitate and supplement the financing of environmental activities in the region as key directions must be the mobilization of domestic resources, which are the main source of funding for environmental measures and more effective use of external resources. The main focus should be placed on expanding the budgetary and resource base and improving the use of budget funds.

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SOCIAL RESPONSIBILITY IN MODERN INTERNATIONAL BUSINESS

*Svitlana Vovk*¹

The actuality of social responsibility in business is caused by the emergence and development of business itself and entrepreneurship. The peculiarities of modern business, regardless of its level and significance, require new reconsideration of responsibility taking into account current conditions and needs of the society, on the one hand, and feature of business development, on the other hand, thus creating market conditions as the third part and as the result of two previous parties.

The main idea of the article is the statement: companies that wish to ensure their bright future will choose their activities, which shall not go beyond the limits given by society of a particular country or several countries (in terms of regional integration), or world market as a whole.

Before talking about the current trends in the provision of social responsibility we should understand its essence. There's no conventional definition of social responsibility in international practice, so everyone considers the term "social responsibility" in one's own way. Social responsibility in business means charity, and patronage, and corporate social responsibility, and social marketing programs, and sponsorship, and philanthropy, and so on.

Summarizing, we can say that social responsibility in business is the impact of business on society and the responsibility of those who take business decisions to those who are directly or indirectly affected by these decisions. This definition of social responsibility in business is mostly perfect and can not be fully transformed into reality, because it's impossible to estimate all the consequences of one decision. But social responsibility in business is not a rule, but a moral principle that should be used in decision making.

Social responsibility in business is characterized by many levels:

1. Basic level of social responsibility in business involves the following obligations: timely taxes payment, wages payment, creation of new vacations if possible.

2. The second level of social responsibility in business provides adequate work and life conditions for employees: skills extension, preventive care, housing, social development.

3. The third, highest level of social responsibility involves charity.

Also, social responsibility in business is divided into internal and external.

The internal social responsibility in business includes: work safety, wages stability, support of socially significant fees, additional medical and social insurance for employees, human resources development by organizing training programs and qualification extension, as well as assisting employees in critical situations.

The external social responsibility in business includes: corporate sponsorship and charity, environment protection promotion, interaction with the local community and local authorities, willingness to participate in crisis situations, responsibility to the consumers of goods and services (production of quality goods).

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The main types of social programs typically include: companies' own programs; partnerships with local and regional state bodies; partnerships with non-profit organizations; cooperation programs with non-governmental organizations and professional associations; programs of information cooperation with the media, etc.

The main motives of social responsibility in business, as a rule, include: the development of its own staff, that gives possibility not only to avoid personnel turnover, but also to attract better specialists at the market; labor productivity growth in the company; improving the company's image, reputation growth; advertising of goods or services; lightening company's activities in the media; stability and sustainability of the company in the long term perspective; the possibility to attract the investment capital for socially responsible companies is higher than for the other companies; social stability maintaining in society in general; tax privileges [5].

In business some principles and values are formed in the area of social responsibility. Large transnational corporations allocate large budgets to ensure an adequate level of social responsibility in their business, to counterbalance them small and medium businesses, without large budgets, focus mainly on the problem of providing their activity efficiency, without taking into account the social component of their activities.

Here are some facts of the effectiveness of corporate social responsibility (CSR):

- 83% of people trust companies that are socially responsible (USA Today), 80% of young professionals are interested in companies that have a positive impact on the environment [1].
- 9 out of 10 employees who are satisfied with their companies' CSR programs have a high level of loyalty, while 75% believe that their employers are very interested in their prosperity, according to the study of Sirota Survey Intelligence, 2007.
- Companies that perform their social/civic obligations of ethics (morality) function better in three out of four indicators, than those who do not perform them. Also such companies, on the average, have incomes 18% higher – according to the study of the Institute of Business Ethics, 2003 [6].
- According to Business-TASS, in South Africa social responsibility in business is increasing. Over 70% of the companies, that are included into the study, respond the requirements necessary for their inclusion in the index of investment into the social sector (SRI-Index). This achievement is approved by the shareholders, who require that information about the companies should contain data related with social and environmental responsibility of the companies.

Social responsibility has ceased to be selective and be a “whim” of successful companies. Today it is an essential and integral part of the business process that is supported by companies in different world regions, by international organizations (UN Global Compact, International Labour Organization, UNICEF, UNIDO, European Council, European Organization for Quality, International Organization for Standardization) and by governments of different countries (Denmark, Norway, Slovakia, Germany, Macedonia, France, UK) [Soshinskii S. Ukraine nuzhna Natsionalnaya strategiya sotsialnoi otvetstvennosti biznesa-expert//www.ukrinform.ua].

Global Compact has appeared as a result of business role realization in society and its possibilities of influence on society, which arise/have arisen as a result of evolutionary business development and its globalization. The initial ideas were the purchasing/acquisition of an additional competitive advantage, which is so important in business development, its appearance at the international markets.

Global Compact Network in Ukraine started its development in 2006, consolidating 34 companies and organizations. Since then, the Ukrainian network has expanded to more than 180 members and continues to grow [4]. The principle of voluntary business commit-

ments to society has effectively entered the life of the most successful Ukrainian companies. This became a criterion for the companies to achieve a certain stage of development and improvement. And we have our own achievements: in 2013 the European Union conducted its first-ever all-European premium – CSR Awards (among 30 European countries, including Ukraine) by including two leading expert organizations of CSR – CSR Europe (Brussels) and Business in the community (Business in the Community, London). The CSR Development Centre is an organization, a leading expert in Ukraine (for competition): 37 companies that cooperate with more than 20 international experts. The results of 150 participants were evaluated. Winners from Ukraine “Prykarpattiaoblenergo” (sphere: environment, www.oe.if.ua).

Major global trends in the sphere of responsible business development:

1. Corporate responsibility covers the entire value chain (companies set specific requirements for suppliers and contractors);
2. The principle of transparency, which leads the companies to the publication of non-financial reporting (on average today about 6000 companies in the world publish such reports, 10 years ago this figure was 800 companies);
3. There is an impact of the company’s responsible behavior on the staff motivation (according to U.S. researches in socially responsible companies the staff motivation is 55% higher than in companies that do not deal with CSR; in socially responsible companies business processes are 43% more efficient and public image of such companies is 38% higher than of the other ones);
4. CSR creates excellent opportunities for the cooperation of the companies and common current social problem solving (there are good examples in Ukrainian practice too);
5. It is especially necessary to distinguish the tendency of promotion the ideas of CSR on consumers in order to change consumer society (“Never buy more than you need”);
6. Promotion of social media [3].

In today's business world we distinguish some new trends of consumers' influence on social responsibility of the companies by their desire to participate. These are the so-called consumption patterns that influence the formation of the requirements for the product or service: presumers (1) and custowners (2).

(1) – affect the goods and services till their implementation, thus creating new demands on the technologies and platforms (growing global cult of the Entrepreneurship)

(2) – consumers who are transformed (move) from passive consumption of the product to the funding/investment into the brand by buying it.

So, if we used to consider social responsibility as its impact on society, in the light of current trends, it is the interaction and interplay of business and society/community. Hence, the partnership principle “business-state” should be implemented, common purpose of which is social responsibility. Confidence, not requirements is the key to formation of real social responsibility. The issues of corporate social responsibility can not be separated from the responsibility of the state, which forms the framework for businesses. All this will facilitate the formation and development of social responsibility. Such trends as the development of nonfinancial form reports, the formation of new approaches for their preparation, thus ensure business transparency; development and improvement of the communications through the dissemination of accurate and “good” advertising, formation of the company's image as its value or the value of its business model; the implementation of personnel development programs, thus “adjusting” it to the strategic goals of the company and so on.

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IMPROVEMENT OF THE STATE MIGRATION POLICY VIA BUILDING THE STRUCTURAL SCHEME OF THE CONCEPTUAL FOUNDATIONS OF THE GLOBAL LABOUR MARKET FORMATION

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The article focuses on the improvement of the state migration policy by building the structural scheme of the conceptual foundations of the global labour market formation. It was established that in the near future we should expect increased competition over limited labour resources which remain in Ukraine.

Statement of the problem. Leading tendencies of development of the world economy in recent decades involve globalization processes, which cause significant shifts in the functioning of the global economy and lead to structural changes in national economies. Liberalization of international economic development calls for the transformation of the labor flows on the global labor market and sets requirements for the organizational-economic and labor support of the national labor markets development.

Analysis of the last researches and publications. Issues of the international labor market development and international labor migration are studied in the works of well-known foreign scientists: D. Bekker, L.E. Billsborrow, H. Clark, D. Massey, M. Piore, A. Port, O. Starc, E. Taylor, M. Todaro, D. Haris and other.

The aim of the research is the improvement of the state migration policy via building the structural scheme of the conceptual foundations of the global labor market formation.

Presentation of the main material. The international labor market is the sphere of the processes of exchange, sale and purchase of the labor force, the nature of which is largely determined by the interests of the world economy. These processes, in turn, determine the conditions of employment of the international labor force, amount of payment and the nature of work that is required in the global labor market.

World market is characterized by significant volumes of export and import of labor that is carried out by the migration of the able-bodied population (United Nations Organization recognizes the migrants who went to another country for a period no less than 6 months). Labor force migration represents a population transfer abroad for the purpose of the employment relationship conclusion (labor migrants must not include those who have left abroad for a business trip, as well as those who are on short-term travel to countries with purchasing and selling purposes) (2, p. 164).

International labor migration can be divided into the following processes:

- labor emigration – departure of the population from the home country in search of work;
- labor immigration – entry of the population in this country for the same purpose.

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The main forms of labor migration are:

- without return – when workers go abroad for permanent residence;
- temporarily-fixed – in this case, travel abroad is carried out for a sufficiently long time period (from 1 to 10 years);
- seasonal workers go to foreign countries for a short period (up to 1 year) for the implementation of the employment services in industries that are seasonal (e.g. agriculture, construction, fishing, resort-recreational sphere and others);
- border or pendulum – daily and ‘between-countries’ movement of the citizens living in the border region of one country to the neighboring country for work (this type of migration is similar to the daily movements of workers from the suburbs to major cities);
- illegal – presumes illegal entry in the country with the subsequent job employment or the legal entry (tourist trip or a private invitation) followed by illegal employment;
- forced – caused by non-economic reasons: wars, revolutions, political changes, natural disasters, epidemics, however, carries a serious impact on labor markets both in the country from which the population leaves and the state which is hosting refugees;
- intercontinental – means not only a departure from country to country, but the change of the continent to live and work. In some countries (Turkey, Russia) intercontinental migration can be a variant of internal migration;
- brain drain – the departure from the country of scientists, specialists, workers of art.

International migration of the labor force can be considered a type of horizontal social mobility of population, a way to eliminate distortions in the structure of national labor markets. (2, p. 166) Labor force migration is complicated by the «language barrier», the complexity of labor resources adaptation in foreign countries.

Currently there are the following main streams of between-countries labor force movement that shape international migration flows:

- movement of the scientific personnel and highly-qualified specialists from different countries of the world to the USA and countries of Western Europe;
- movement of the unskilled labor from the countries of Latin America and countries of the Pacific region to the United States;
- movement of the unskilled labor to the developed European States from Africa and the Middle East;
- transfer of the population from former colonies to the former metropolises (especially to France and Great Britain);
- ethnic migration.

It should be noted that there is a problem of measuring the intensity of migration and, accordingly, obtaining reliable information through the presence of such features of international migration:

- the non-biological nature of migrations;
- a manifoldness of relocations throughout life;
- peculiarities of migration as of inter-territorial process;
- three stages of the migration process (potential migration, resettlement, adaptation);
- wide range and impossibility to delimitate factors that shape the direction and the scale of migration processes;
- selective nature of migration processes;
- the variety of types, kinds and forms of migration.

Migration processes generate both positive and negative trends in the world. On the one hand, the developed countries reducing labor shortages face the challenges of demographic imbalances and inequalities in the labor market. On the other hand, immigration weakens the social-political unity, simultaneously strengthening the processes of the brain drain (currently about 1.5 million skilled workers from the developing countries work in the developed countries) (1, p. 149–150). According to the international statistics, annual losses of the less developed countries of emigration of intellectuals annually are between 4 to 5 billion dollars (1, p. 152).

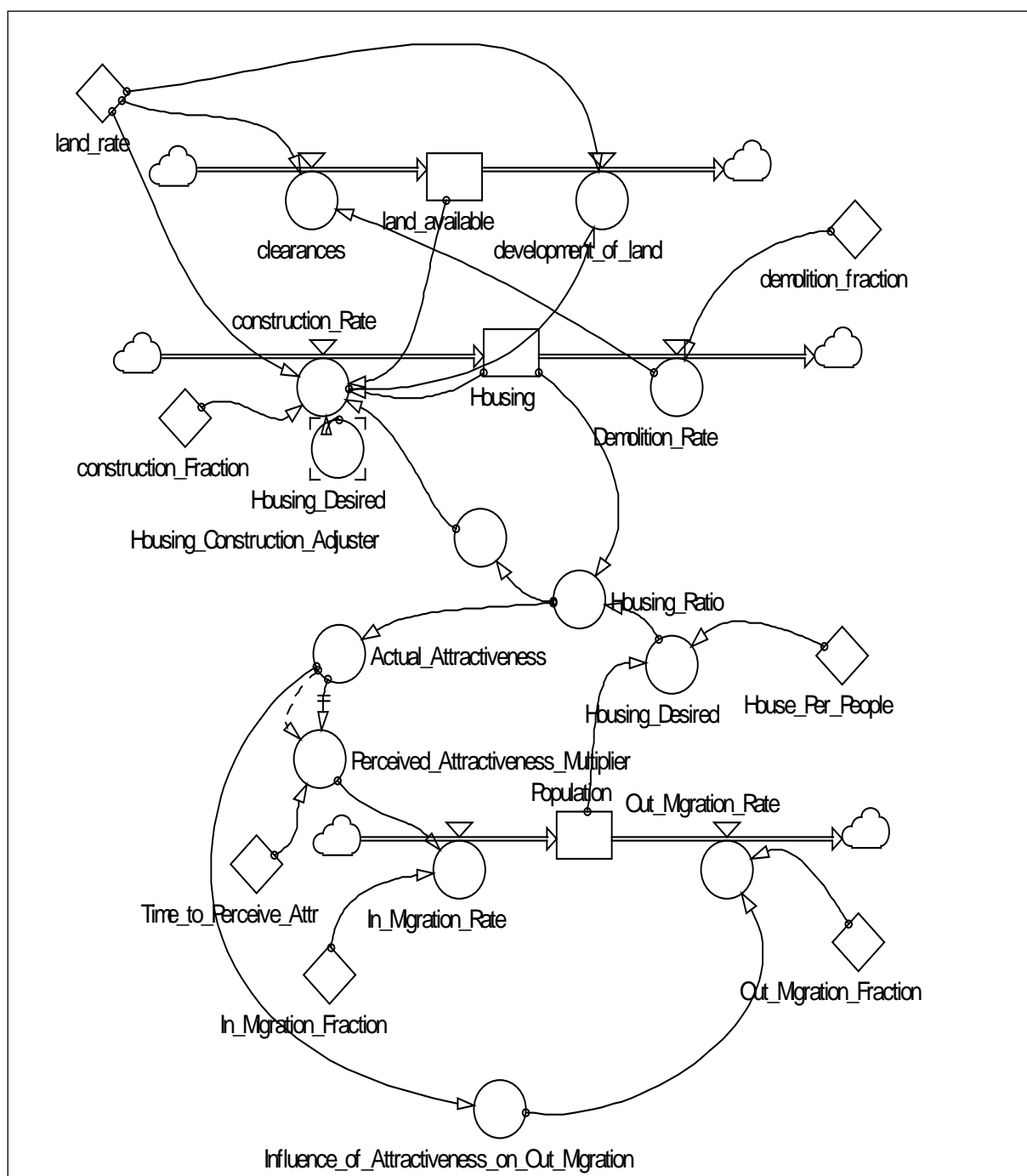


Figure1. System-dynamic model of cause-consequence influence of the attractiveness of the country on migration processes

The multidimensionality of the conditions of the world economy development and the world community form the extremely differentiated in its composition labor force. First of all, the characteristics of the international labor force differ depending on the spheres of international economic activities. These differences must be considered when building a simulation model of labor migration (Figure 1).

Thus, when developing system-dynamic model of cause-consequence influence of the attractiveness of the country on migration processes (Figure 1), population was considered the baseline. The dynamics of the increase of this indicator is determined by processes of birth rate and immigration. The decrease in population is the result of mortality and emigration. A certain part of the model allows considering the necessary expenses for the social support of the population as one of the most important directions of an expenditure of budgetary funds. In particular, targeted subsidies are only available to poor families, a criterion of poverty is considered to be a certain level of total annual household income. Additionally, this model includes the population disaggregated by classes: the rich, the poor, and the middle class.

Variable of 'population decline' represents a flow.

The input variables are: entered; leaved; birth rate; mortality; the average family size; the share of the rich in the population; the share of the poor in the total population; the share of poor families who have applied for the subsidy, the subsidy is needed on average per family.

Intermediate variables: the number of born; the number of the dead; the number of families; the number of wealthy families; the number of middle class families; the number of poor families; the number of families that applied for the subsidy, the amount of the necessary subsidies; the average allowance per family; the provision of subsidies.

The findings of this study. Implementation of economic and mathematical modeling of the development of international and Ukrainian labor markets using the tools of the system-dynamic model of cause-consequence influence of the attractiveness of the country on migration processes (see figure 1) and implementation of the proposed model in the SPT PowerSim allowed to determine the presence of direct dependence among these indicators (the more built up a country and developed infrastructure, the greater the increase in the number of population at the expense of migrant workers, and vice versa).

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INNOVATION-INVESTMENT ACTIVITY STIMULATION IN THE AGRIBUSINESS OF UKRAINE

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The areas of innovation-investment activity stimulation in the agribusiness of Ukraine are considered, their assessment in the new dimensions of the economic space is conducted, the own point of view and approaches to the innovation-investment activity development in the agribusiness are offered.

PROBLEM DEFINITION

The qualitative changes in the agribusiness speak about the significant rearrangement of conditions, factors and sources which determine its economic development. The possibilities of the traditional resources of economic growth are narrowed, their effectiveness is reduced, and the expenditures on the material resources and environmental protection measures increase. "The depreciation of the fixed assets and the production infrastructure continue to increase, the technological level of production remains low and causes its high energy and material intensity" [3 p. 217]. "The depreciation level of the agricultural equipment is 60–80%. The majority of the equipment is outdated [1 p. 172]. This means that in 21-st century the innovative processes, scientific knowledge, new technologies and products should become dominant in the model of economic growth in the agribusiness. Thus: "... only 10–15% of the total investment to the economy of Ukraine are spent on innovation and R & D processes"" [3 p. 217].

Technical and technological renewal of agribusiness requires an integrated solution at the state level, "inasmuch as in a few years, the agricultural equipment at the rural areas will become completely inoperable. Annually the equipment fleet should be completed by 1000 tractors, 260 combine harvesters, 130 high-productive forage harvesters and other agricultural machinery, equipment for mechanization of labor-intensive processes in the animal breeding" [1 c. 175].

The development of agro-industry and the nature of its economic growth are increasingly determined by the introduction of scientific and technological achievements and innovations. So, today, an innovative type of economic development becomes the foundation which determines the economic power of the agro-industry. Therefore, the stimulation of the innovation and investment activity in Ukraine's agro-industry is an objective necessity, an alternative of which may be only its decline. All this provide the topicality of given paper.

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ANALYSIS OF THE LATEST RESEARCHES AND PUBLICATIONS

The issues concerning the innovation-investment activity stimulation in the agribusiness were examined by the following scholars: O. Amosha, L. Bezchasnyi, V. Vasenko, S. Volodina, A. Haidutskyi, V. Heits, O. Hudz, O. Datsii, B. Danylyshyn, M. Koretskyi, M. Kropyvko, M. Malik, V. Mesel-Veseliak, V. Osetskyi, H. Pidlisetskyi, P. Sabluk, O. Tyvonchuk, A. Chukhno, etc. However, despite of the availability of a large number of publications on stimulating of the innovation and investment activity in agribusiness, some problematic aspects remain controversial, unresolved and require further research.

The objective of the paper is to underline the areas of the innovation-investment activity stimulation in the agribusiness of Ukraine, conduct its assessment in the new dimensions of the economic space, work out the author's recommendations and approaches to the development of the innovation and investment activity in the agribusiness.

Material statement. Ukraine has adopted a series of the legal acts regulating the investment and innovation activity in agro-industry, but the dynamics of the investment attracting and innovative products introduction demonstrates the limitations of activation and development of innovation and investment activity in the agribusiness. The main reasons for such a complex situation in the innovation and investment area of agribusiness can be considered as:

- the lack of effective means of state support and stimulation in the innovation and investment areas of agro-industry;
- the reduction of the actual amount of funding of the research and innovation institutions of agriculture;
- targeting of the business entities on the commodity-product, not on the resource and technical-technological innovations;
- underestimation of the human factor effort;
- decline in the actual effective demand and therefore “narrowness” of the markets;
- the low profitability level of the agro-industry;
- high proportion of loss of business entities;
- underdevelopment of institutional investors;
- increase of the intellectual migration number, etc.

It should be noted that “the number of intellectual migration increase”. Annually, 36 Doctors of Science and 105 Candidates of Science emigrate from Ukraine. The share of work performed by the domestic scientists customized by the foreign companies due to the lower demand of the domestic sphere of material production has increased from 11 to 21%” [5, p. 9]. However, according to the international financial institutions data, Ukraine “belongs to the countries with very low levels of high-tech products in exports (5%), while the average rate in the world is 21% (Philippines – 65, U.S. – 32, Ireland – 41 Russia – 13%)” [2, p. 40]. And according to the results of “Opportunities and unfavorable environment” (Opportunities in Adversity) [9] which were carried out by The Economist Intelligence Unit to identify priorities for the coming year, the vast majority of the companies-respondents spoke about the asset protection, increase of the effective activity, and restructuring of business, at that 36% of them consider the possibility of selling of its assets” [9].

Thus, the state should create all necessary conditions to stimulate the innovation and investment activity in the agro-industry at all levels. Stimulation of the innovation and investment activity in the agro-industry can be done by the following ways: 1) creating of economic conditions which effectively influence on the development of the new kinds of machinery, techniques, varieties, breeds and technologies, tax, patent, investment and financial-

credit policy, government procurement system, creating of science parks and other providing structures, etc, and 2) the direct or indirect investment of innovations and R & D funding.

The first way to stimulate the innovation and investment activity is used in Israel and Sweden, where the state support for the development of the high-tech industries has been the basis of the economic policy [2]. One of the most important programs of the innovative activity of private enterprises subsidized at a national level is carried out in the UK [2]. This program enables businesses to reimburse 50% of the costs on innovations implementation providing the increase in search of the new and innovative strategies. The main source of basic scientific research in the USA and Canada is the budget costs [7]. For example, in the United States due to the liberalization of the tax and depreciation policy (taxes and benefits on the use of accelerated depreciation) 20% of total R & D expenditures are covered. The social infrastructure is created, forming a unique information system of the state. To finance the innovations of the applied nature the profit of enterprise, i.e. equity capital is used in the majority countries of the world.

Taking into account the importance of the innovation and investment activity for the agro-industry of Ukraine, it is necessary to create the financial mechanism to support and stimulate the innovative agribusiness at the national and regional levels. This mechanism should create the most favorable conditions for the channeling of the capital on agribusiness innovations. The mechanism to support the innovative business in Russia is very interesting. They created a system of funds for the innovative enterprises financing (budgetary, extra-budgetary and regional), loan guarantees sideways the local authorities and commercial banks; taxation of income benefits and the possibility to receive a tax credit from the local budget. In Russia, such funds of business innovation support are created (at all levels) [2, 7]. Among them are:

- Russian Technological Fund, which finances the scientific and technological developments and their introduction into the production (the founders of the fund were: the European Bank for Reconstruction and Development, the Finnish National Fund for Research “Citro” British Funds “Hambrus Bank” and “Rothschild Bank” Russian “Astrobank”);
- The Federal fund for product innovations financing those innovative projects which did not join the federal target programs (the fund was established in 1995 and it is formed by means of contributions – 1.5% of the state centralized capital investments);
- At the regional level the fund to promote the development of small businesses of scientific and technical spheres was established. 0.5% of the federal budget allocations for the development of innovations are channeled on this fund.

Besides these, the national funds of innovative activities support are formed in the urban areas, where the scientific and technical potential is well developed: Moscow, St. Petersburg, Novosibirsk, Tomsk, and others. There is also a venture fund in St. Petersburg (founders – European Bank for Reconstruction and Development and the Government of Germany).

All of the noted Russian funds to promote the innovation and investment activity in the agro-industry provide a refund of costs by the entities for quite some time and at reduced interest compared to commercial banks.

In Ukraine, the issue concerning the implementation of innovation and investment activity in the agro-industry and its stimulation according to the crisis deformations is particularly relevant. Under conditions of the constant budget deficits it is impossible to rely on the budgetary financing. By 2000, an important source of funding for innovation at the regional level was the State Innovation Fund. It was the only fund to support the implementation of innovative business in Ukraine. Many of the projects financed by the fund were not connected with knowledge-intensive types of products or technologies. Sometimes the costs of

the fund were spent on the purchase of imported equipment, and this was a clear violation. And the fund was transformed into a self-financing organization [8].

The source of the research funding by means of the product cost is used in Ukraine as a basic one in agribusiness enterprises. The government support for the development of high-tech industries is the basis of the economic policy of any state [4]. To stimulate the development of innovation and investment activity in the agro-industry it is advisable to take the following measures:

- to develop a national program of the innovative investment strategy in the agro-industry on the basis of the economic and social strategy of the agricultural sector development;
- to form a state order to conduct research and development works on a competitive basis;
- to form the mechanism of the relationships and interaction towards the implementation of the academic and applied science (universities, academic and research institutes and institutions);
- to develop a financial mechanism of the innovative agribusiness support to create the most favorable conditions for investment in the domestic agribusiness innovations;
- to create coordination centers at the national and regional levels (regional and district centers);
- to form a new industrial cluster type associations for state support of innovative business;
- to carry out activities of public-private partnerships in the national research and innovation sphere with a detailed prediction of the possible consequences in order to preserve the integrity of the academic programs and research team;
- to carry out innovation activities subsidizing of the agricultural enterprises at the national level (reimburse 30–50% of the costs on innovations); to develop the effective mechanism of funding for the basic scientific research from the budget;
- to introduce tax incentives for the agricultural enterprises by means of the profit and taxable income for the innovations financing;
- to create a budget and off-budget funds and state and local funds for the innovative businesses financing;
- to form a system of the credit guarantees sideways the local governments and commercial banks.

All funds must be adapted to the specifics of innovation and investment in agro-industry and provide the compulsory repayment over a long period and under favorable interest rates compared to the commercial banks. To improve the use of the innovation fund it would be expedient to: leave deductions to this fund compulsory for all types of businesses and ownership; impose charges into the extra-budgetary funds on a voluntary basis; allow agricultural enterprises of all forms of ownership and organization to form the innovation fund of enterprise by means of the net cost and a part of the net profit; to provide interest-free innovative loans to all agricultural enterprises, which during the last two – three years have created an innovative fund of enterprise; provide innovative loans to the newly established businesses if there is a business plan for the project and the feasibility of this project is defined. “The effective implementation of the innovative processes is connected with the integration in circuit of all entire reproductive structure elements such as “science–technology–production–consumption”, which provides the creation of the extensive system of marketing and service to promote the scientific research and enhance the inventive activity based on the new type of relationships – inverse relationships in the innovation process” [8].

CONCLUSIONS

Implementation of the developed recommendations and actions on the author's approach to stimulate the innovation and investment activity in the agro-industry will significantly improve the situation with regard to the innovations and effective use of the investment resources in this direction. Thus, the stimulation of the innovation and investment activity in the agribusiness should be based on the following priorities as the modernization of the legal framework of the investment and innovation activity regulating, the system of the innovative business stimulating through the tax and depreciation policy and the innovation infrastructure (development and improvement).

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SECTION II REGIONAL ECONOMIC DEVELOPMENT AND GOVERNANCE

EVOLUTION OF SPATIAL STRUCTURE OF SIBERIA UNDER CONDITIONS OF SELF-DEVELOPMENT OF SIBERIAN REGIONS¹

*Suspitsyn S.A.*²

INTRODUCTION

The real growth of the regions of the Russian Federation depends on two main groups of factors influencing their dynamics: “targeted” (external) factors, induced by the impacts of the program-project solutions of large corporations and (or) the state and “genetically determined” (internal) conditions of development. Their overall impact on the development pathways of the regions affects the changes in territorial structure of the national economy. But even in the period of the most successful economic growth (between two crises in 1998 and 2008), the territorial structure of key indicators of social and economic development did not change significantly (Table 1). This conclusion is valid both for the macroregions of focused state attention (the Far Eastern Federal District (FEFD) and the North Caucasian Federal District (NCFD)) for which the federal state programs have been developed and financed but the result was either status quo or insignificant improvements, and for the “quasipriority” regions (Ural and Siberia), for neglected territories (the Southern Federal District (SFD) except Sochi, and the Privolzhsky Federal District (PFD) except Kazan), and even for the country economic activity centers (the Central (CFD) and the North Western Federal Districts (NWFD) with their powerfully developing cores – Moscow and St. Petersburg, their growth overlaps only the development gap of other regions of these districts).

¹ The article was prepared with the financial support of integration grant of SB RAS “Acceleration factors and mechanisms of socio-economic development of the regions of Russia”.

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Table 1

**Changes in territorial structure of economic development indicators
of the Russian Federation macroregions in 2007 versus 2000 (%)**

Indicator	CFD	NWFD	SFD	NCFD	PFD	UFD	SFD	FEFD
GRP	1,4	-0,2	-0,1	0,4	-0,9	0,2	-0,4	-0,4
Real fixed capital formation	-2,4	3,3	-2,3	-0,1	-0,8	-3,2	3,2	2,3
Production of commodities	3,0	0,4	0,3	0,2	-1,9	-0,3	-1,3	-0,4
Consumer market	-4,9	-0,6	0,5	0,8	1,4	2,3	1,0	-0,5
Regional budgets	5,4	2,1	1,7	0,7	-4,9	-8,0	3,1	-0,1
Remuneration of labor	2,9	-0,6	-0,1	0,4	-0,5	-1,1	-0,5	-0,5
Average changes	0,9	0,7	0,1	0,4	-1,3	-1,7	0,9	0,0

Source: [1, 2]

For the regions located out of zones of active external influences the genetic factors determine more quiet dynamics of development, based on their own potencies and success in improvement of institutions, including those directed by the state social and economic policy¹. Numerous examples of weak apprehension of federal center reformatations in industrial, investment and innovative policies etc. directed by the in the regions to a large extent could be explained by the low level of economic development, lack of conditions (institutional and related to resources) for their implementation and insufficient critical mass of federal initiatives and resources allocated by the state through program-strategic projects. It seems that actual development trends for the most regions of Russia will be closer to trajectories determined by the genetic scenario than to those determined by the modernized conception of Strategy-2020. Analysis of its proposals made in [5] identified several significant gaps: exaggerated attention to the institutional approach against the background of its absence in the real sector (in particular, vague provisions in industrial policy and in mechanisms of stimulation of domestic demand), vague notion (though traditional for such documents) of territorial aspects of national economic development etc.

DEVELOPMENT OF SIBERIA UNDER THE CONDITIONS OF GENETIC SCENARIO

The method of genetic scenario development is as follows. The array of regional indicators for 2000–2010 based on data provided by the Federal State Statistics Service of Russian Federation is used. Regions are described by 10-component vectors of the following indicators: production of commodities (in terms of industrial and agricultural production), real fixed capital formation, average salary, per capita incomes and housing construction, the state of the consumer market (retail turnover and marketed services), the unemployment rate, and fiscal capacity. All indicators are made comparable for the interregional comparisons: calculated per 1 person, adjusted to the conditions of 2000 and normalized to the average Russian level. The prepared data are used for the building

¹ It is natural to name a scenario of possible development of Russian regions based on genetic factors – genetic scenario. Methodology and examples of development of such scenarios are described in papers [3, 4].

summary indexes of regions, curves of region development genotypes based on specific series and summarized indexes, and for building of regional phenotypes system. By integrating varieties of partial estimates summary indexes comprehensively characterize the level of regional development; they exhibit the property to greater steadiness to the random fluctuations of the specific indicators as well. Vectors of regions summary indexes of form annual panels which can be considered in terms of increase ordered indicators. Comparison between annual panels of indexes (Figure 1) is characterized by close proximity of the curves which represent them (correlation coefficients are close to 1). Their averaging-out for a series of years represents the curve of development genotype in terms of “Summary index” indicator.

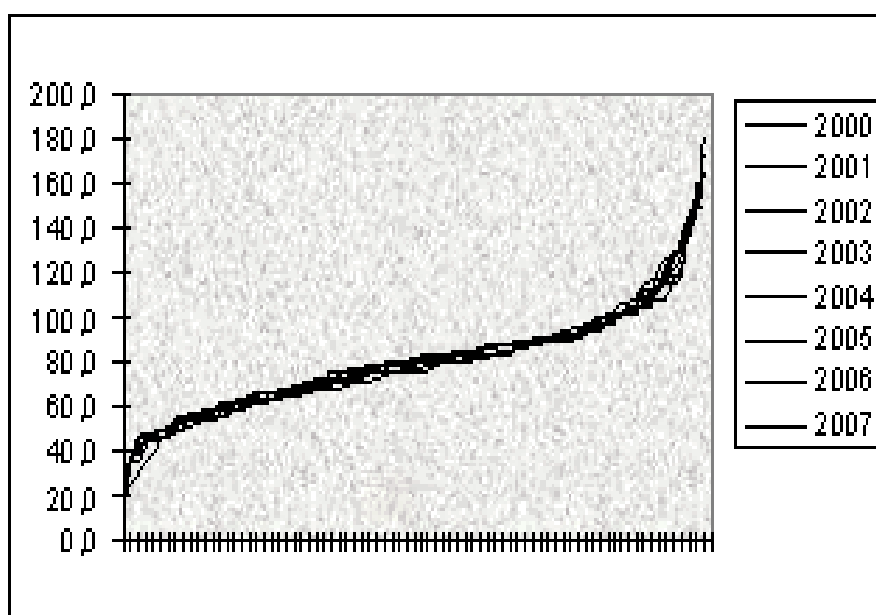


Fig. 1. Example of summary indexes annual panels of the Russian Federation regions in 2000–2007

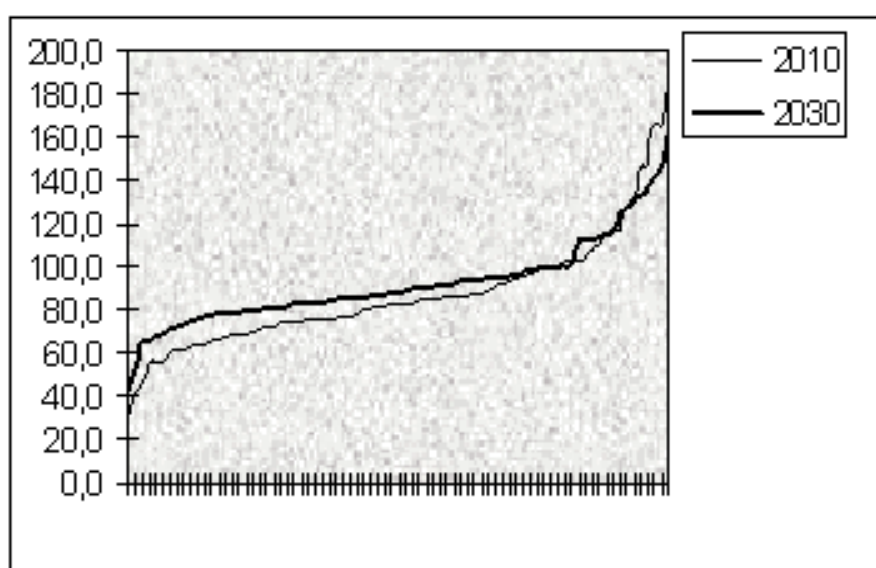


Fig. 2. Genotype curves of the Russian Federation regions development (based on summary index)

The same curves can be plotted for each indicator used in the calculations. They can be used for analysis of development of each region in the past, as well as for evaluation of its development in the future. Spatiotemporal characteristics of system region development are accumulated in the genotype curve when these curves themselves evaluate slowly in time. This curve variation range can be divided into a series of intervals, where for each of them summary indexes, representing group properties (phenotypes) of regions development, are calculated.

Calculations of estimated figures are based on the following supposal: if a region will be included in some group (saving its former place or changing the group) by the end of the period then its development will depend on dynamics of corresponding phenotype in the next time cycle. By processing of estimated indicators the genotype curves can be also plotted for the future periods and their possible evolution can be estimated as well. The general trend, estimated by the dynamics of summary indexes of regions, consists in some reduction of interregional differentiating by 2030 (Figure 2).

Calculation factor assessments of Siberian Federal District (SFD) and its regions development under the scenario conditions of genetic scenario are presented below in Tables 2–5.

Table 2

Dynamics of key indicators of SFD development, % to RF

Indicator	2010	2020	2030
Industrial production	83,2	84,0	84,4
Agricultural production	90,6	82,2	71,6
Real fixed capital formation	63,7	69,6	71,6
Per capita incomes	93,2	95,0	98,4
Retail turnover	77,6	81,0	89,2
Marketed services	74,2	82,1	88,4
Fiscal capacity	82,0	81,1	83,5
Housing construction	82,9	93,9	97,8
Index of business activity	84,1	88,1	89,3

Table 3

Siberian Federal District share in Russian Federation, %

Indicator	2010	2020	2030
Population	13,7	13,8	13,9
Industrial production	11,4	11,6	11,7
Agricultural production	12,5	11,3	9,9
Real fixed capital formation	8,8	9,6	9,9
Households incomes	12,8	13,1	13,6
Retail turnover	10,7	11,2	12,4
Marketed services	10,2	11,3	12,2
Incomes of regional budgets	11,3	11,2	11,6
Housing construction	11,4	12,9	13,6
Share of SFD on the average	11,6	12,1	12,4

Some conclusions, based on the data of Tables 2 and 3, are the following. Although it will prevail by 2030, Siberian economy lag from average level of Russian Federation economy will be reduced in 1.5 times (from 15 to 10%). Agricultural economy will be developing slower than Russian average owing to its more widespread growth in more favorable climatic and natural zones of European part of the country. Specific characteristics of living standards will reach Russian average: household income and housing construction.

SIBERIAN REGIONS UNDER THE SCENARIO CONDITIONS OF GENETIC SCENARIO

Due to manifestation of the “scale effects” weak Siberian regions will be developing a little faster than stronger ones, which, in particular, will manifest in reduction of interregional differences (the estimates of this reduction, calculated by summary index, will equal 31%) (Tables 4, 5).

Development of the Krasnoyarsk Krai can slow down within a framework of the genetic scenario which ignores East Siberian oil and gas province resource development megaprojects. Growth of the industrial production in the Krasnoyarsk Krai and the Kemerovo region will be lower than average in Siberian Federal District, in other regions it will be a little faster than average Siberian rates. All in all, the composition of investments in fixed assets will move closer to West Siberian regions (from 57% in 2010 to 60.5% by 2030). Agriculture will be developing faster in the regions of traditional land-use: the Altai Territory, the Novosibirsk and the Omsk regions. Territorial structure of other factors considered in the calculations – regional budget incomes, households, housing construction – evolves less noticeable.

Table 4

Summary indexes dynamics of the SFD regions, %

Region	2010	2020	2030	2030/2010
Republic of Altai	55,5	69,2	74,1	1,33
Republic of Buryatia	75,9	88,0	88,0	1,16
Republic of Tyva	46,7	63,2	67,5	1,45
Republic of Khakassia	68,4	69,9	71,7	1,05
Altai Territory	68,9	79,2	81,4	1,18
Zabaikalsky Krai	60,3	67,9	71,4	1,18
Krasnoyarsk Krai	100,3	99,7	99,4	0,99
Irkutsk Region.	82,8	89,7	90,4	1,09
Kemerovo Region	85,6	86,3	86,6	1,05
Novosibirsk Region.	97,7	98,9	100,5	1,03
Omsk Region	91,5	91,8	95,6	1,04
Tomsk Region.	83,8	87,2	85,2	1,02

Table 5

**Geographic distribution of economic strength
in Siberian Federal District, %**

Region	2010	2020	2030
Republic of Altai	0,7	0,9	1,1
Republic of Buryatia	4,5	5,0	5,0
Republic of Tyva	0,9	1,3	1,5
Republic of Khakassia	2,2	2,3	2,3
Altai Territory	10,4	11,0	10,8
Zabaikalsky Krai	4,1	4,4	4,5
Krasnoyarsk Krai	17,6	16,7	16,3
Irkutsk Region	12,5	12,8	12,7
Kemerovo Region	14,6	14,3	14,5
Novosibirsk Region	15,9	15,3	15,3
Omsk Region	11,2	10,6	10,6
Tomsk Region.	5,4	5,5	5,4

**DEVELOPMENT OF THE ALTAI TERRITORY
UNDER THE CONDITIONS OF GENETIC SCENARIO**

Coming to a fiscal capacity path of faster economy growth than Russian average is the total result of the development of the Altai Territory within the conditions of genetic scenario (Figure 3). Maximum advance is possible for the following indicators: investments, industrial production, housing construction (up to 20%). Per capita income, salaries and indicators of consumer market development (market services and retail turnover calculated per capita) will grow in a rate closer to all-Russian average.

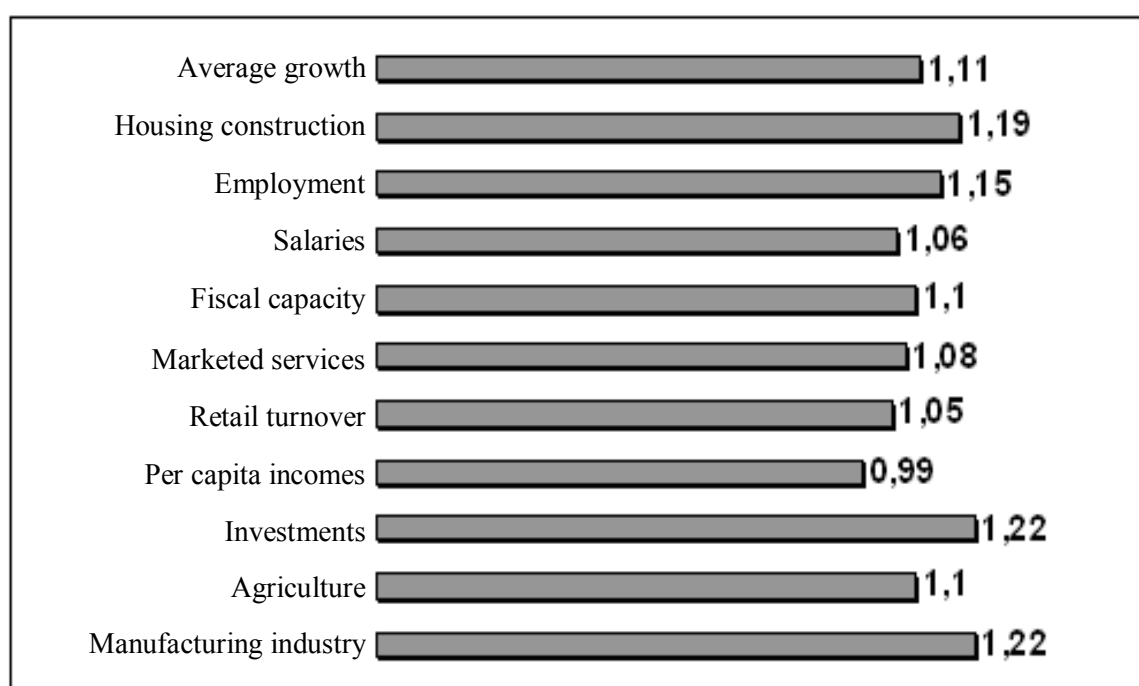


Fig.3. Growth of per capita indicators of the Altai Territory development by 2030
in comparison with the growth of the Russia average indicators.



CONCLUSIONS

There are no reasons to assume that Siberia is among regions of high priority state interests¹. Therefore, there is a high possibility that macroregion development will be close to the genetic scenario with outlying cases with regard to some regions where vectors of state, corporate and regional interests may approach each other from time to time. Motivations and conditions of self-development, manifested not only in mere possession of resources by a region, lie at the core of such scenario. In this case “self-development” means potential readiness of a region (confirmed, among other things, by the dynamics of its development in the previous years) to move to another phenotype of development usually of higher level, which is provisioned by the whole complex of institutional, related to resources, and structural conditions that part of other regions of this phenotype possess already. To provide the progressive advance of the regions along the development genotype curve (from phenotype to phenotype) – that is the new presentation of the state regional policy. The constructive manifestation of such a policy would be, firstly, the system of goal-oriented milestones for region development targeted at the regions capabilities; secondly, realistic ones, since they have been achieved by the regions of more advanced development phenotype; and thirdly, providing progressive growth dynamics of corresponding indicators.

Modernization as a new gradient of the concentration of intellectual, management, financial and other efforts and resources becomes more and more popular. Any facts and actions directed at improvement of today’s condition are being gathered under its flag. Cottage hospital received ultrasound device, school building was repaired, road surface was patched up, etc. All these activities are presented as victorious steps of gathering speed modernization. In reality cleanup, renovation of productive facilities based on existing technologies, rationalization of product flows, resources, finances, etc. is not modernization itself. One economy is better than another one, if with the same resources it gets better results from their utilization. First of all, the task of economy modernization is a process of key parameters growth of its efficiency, in particular, the output of the main production factors – labor and capital. And its accomplishment is possible only on the basis of profound reformation of technological, institutional and social structure of economy and society.

The regions are the “litmus paper” of seriousness of intentions to make radical steps in economy modernization. Self-sufficient primary elements of a country – municipalities and their associations – are the foundation of advanced economies. It can be very well expected, that if existing order of things regarding these elements will be preserved, successful transition to the sustainable economic development, as it is in the countries with advanced economies, is doubtful. Therefore, the main problems of Siberia are related not to the issues in relationships between its regions and the Federal Center (exclusively, selectively, some side issues might be resolved or being resolved at present) but to the common system of institutional conditions which do not motivate regions toward sustainable type of development. Unfortunately, existing state structure model does not evolve in this direction. Radical modernization should concern the very foundations of federal relations as well. While, at best, just a fourth of taxes collected in municipalities will be passed as their own revenue, any talks about sustainable financial base and growth of motivation of local communities towards economic activity are useless. The attention of federal gov-

¹ Territories, geopolitically important for Russia, are marked by their status through the federal targeted programs set up for them. There are four such programs: 1) for Southern Kuril Islands, 2) for the Russian Far East, the Transbaikalia, and the Irkutsk region, 3) for the Northern Caucasuses, and 4) for the Kaliningrad region. All attempts of the SB RAS and the office of Presidential Plenipotentiary Envoy to the Siberian Federal District to obtain the same status for Siberia have been unsuccessful yet.

ernment towards middle class formation, small business stimulation, etc. mostly bears a formal character of extraterritorial recommendations. It is not an element of system transformations of local economies and municipalities directed at formation of internal market, meeting consumer demand, and growth of living standards of population. Even assuming that specific directions of economic and social changes proposed on federal level are built on the basis of solid, system, consistent general concept, it should be acknowledged that upon reaching a certain points according to the industrial programs such consistency should be forgotten. Self-contained process of these programs implementation in particular parts does not provide harmonic and comprehensive picture of general improvements in the life of local communities. And this would be much desirable. If we plan to be among countries with advanced economy, it would not hurt to understand why it is comfortable for people to live there without any programs and incentives organized by supreme authorities, even in a smallest village, and here, even in a big city, there are lots of problems.

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RUSSIAN URBAN STRUCTURE: TENDENCIES AND DETERMINANTS¹

Evgeniya Kolomak²

Aim of the paper is to estimate tendencies in the evolution of the urban system in Russia in the transition period and to discover factors influencing the development of Russian cities. There are several theoretical approaches to the explanations of spatial equilibria: 1) Zipf's law, based on the stochastic process of random walk; 2) agglomeration economics resulting from the increasing return and the monopolistic competition; 3) natural and historical fundamentals which determine a stability of settlements' location structure. In the paper we focus on an empirical analysis of the first two approaches: Zipf's law and agglomeration economics.

INTRODUCTION

One of the tendencies in the last century is growing role of cities, the urbanization is a phenomenon observed in almost all countries. There are two characteristic features of the process, firstly, urban population is increasing and the rate of growth is rather high and, secondly, big cities are growing faster. In 1900 urban citizens amounted to 13% of the total world population, in 1950 – 29%, in 1999 – 46% and in 2010 – over 50%. In the beginning of the XX century number of cities populated by more than one million people was 10, and in 2000 it reached 400.

Development of cities in Russia in the soviet period depended on the centralized planning, the key elements of the regulation were, firstly, restrictions on the growth of the big cities and, secondly, the stimulation of migration to and creation of production capacities in the small and middle cities and towns. Since the beginning of the reforms the market mechanism influences the spatial distribution of economic activity in the country. Aims of the paper are: 1) to evaluate trends in the evolution of the urban system in Russia in the transition period and 2) to identify factors affecting the development of cities.

APPROACHES TO THE EXPLANATION OF THE EVOLUTION OF URBAN SYSTEMS

The literature offers several theoretical approaches to the explanation of a spatial equilibrium: 1) Zipf's law, which is based on a random walk stochastic process, 2) agglomeration economics resulting from the increasing return to scale and monopolistic competition, and 3) the geographical and historical fundamentals predicting stability of settlement systems and its dependence on the historical events, climate and geographical characteristics.

Zipf's law is an empirical regularity describing the distribution of cities, which has been confirmed for many countries and shows high stability. The law predicts that the probability of the size of a city to be more than S is proportional to $1/S$. It was shown³ that a stochastic process where cities grow randomly and demonstrate the same average growth rate and the same standard deviation converges to Zipf's distribution.

¹ The paper was prepared as a part of the research supported by the grant of President of Russian Federation to Leading Scientific School (SS-775.5014.6).

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³ Gabaix X. Zipf's law and the growth of cities// The Quarterly Journal of Economics, 1999, 114 (3).

The arguments in favor of agglomeration economics are presented in the UN-HABITAT reports¹, where it is shown that the largest cities of the world have significantly higher labor productivity than the national average. Benefits of the large cities belongs to the both consumers and producers sides. There is a higher spatial concentration of population and labor force in a big city, and, as a consequence, the number of different consumer markets and related specialized industries increases. The propensity of consumers to the diversity means that a city, offering a variety of different products and resources, increases the utility function of the population. Accordingly, consumer's welfare increases proportionally to the size of a city. At the producers' side one of the sources of the benefits is cost savings due to the proximity to the partners, which is provided by the localization and increasing returns to scale. Interactions between firms include market and transaction communications. Allocation near suppliers of input reduces transport costs, what gives an opportunity to decrease prices of output and to expand the market. The suppliers also have incentives to set up firms in an agglomeration, where the demand is higher due to lower transaction cost. There are commodities and service that are provided within a metropolitan area only; in this case a cost-effective production is possible only if a significant demand is concentrated in a compact area. Co-location of suppliers and consumers reduces the overall cost, stimulate the effectiveness growth, and creates opportunities for extension of the existing and creating new markets. Active interactions between firms in the cities contribute to the creation of clusters and networks, mitigate the negative effects of the intra-industry competition and reduce the risks of cooperation. Networks allow for the more flexible usage of the common resources and provide an access to a range of specialized services. A big city creates opportunities for the more efficient exploitation of production and social infrastructure, for the increase of the number of users and makes it profitable and diversified decreasing individual costs. The result is a higher standard of life; cities have more developed transport, communication, health and education infrastructure, culture and leisure industry. Reducing the cost of infrastructure services due to the high population density makes them affordable, creates opportunities for human capital development. The concentration of economic, financial, administrative and human resources creates the conditions for an active exchange of business information and diffusion of innovations and new technologies what gives impetus to development dynamics. Large and the largest cities are places where higher education and academic research institutions are concentrated; they offer such institutions and platforms as business parks, business incubators and techno-parks. Big cities are characterized by more advanced and flexible labor market, the larger the city, the greater its ability to meet the demand from the business side.

Concentration and diversity of resources in large cities and metropolitan areas provide the possibility to utilize economy of scale, advantages of large market and of the variety of production factors. However under certain conditions the rapid growth of cities is associated with some negative consequences. Immobile resources (land and water) set limits for city growth. Big cities are suffering from environmental degradation and air pollution, population live far from nature and green spaces, the preservation of which becomes a difficult task.

One of the most acute problems of large cities is the transportation infrastructure. The reverse side of the concentration of economic activity and high population density in big cities is problems with housing and overcrowding, these reduce the quality of life and attractiveness of large cities. It is statistically confirmed that the increase of the general welfare of the population of large cities is accompanied by a sharp income disparities of the population and by growth of the absolute and the relative poverty.

Limitations of public policy are discussed in the studies devoted to the influence of fundamental economic, historical and geographical factors on the structure and evolution of

¹ State of the World's Cities 2010/2011 – UN HABITAT. 2010. Urban World. Issue 4 – UN HABITAT. 2010.

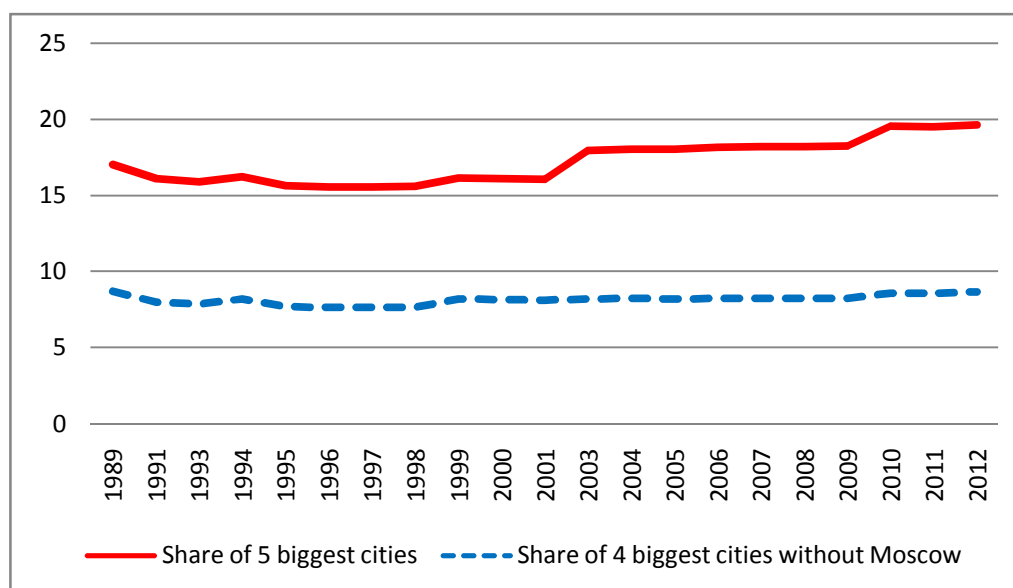
urban systems. The authors come to the conclusion that the Russian urban system is sustainable even to the major disasters and shocks¹. Problems of urbanization in Russia are systematically studied by demographers and economists geographers². In this paper we focus on the empirical analysis of the predictions of the two theoretical approaches: the agglomeration economics and the random stochastic process.

EMPIRICAL ESTIMATES OF THE EVOLUTION OF THE URBAN SYSTEM IN RUSSIA

Information and descriptive statistics. We rely on the official data of Federal statistical service of Russian Federation and on the data base “Economy of Russian cities”; the latter is one of the resources of MultyStat system. The observations cover period 1985–2012. Number of the observed cities varies from 1030 to 1070.

The structure of Russian urban system estimated using the data of Federal statistical service of Russian Federation is presented in Appendix. The picture below (Picture 1) shows the dynamics of share of urban population living in the five biggest cities (Moscow, Sankt-Petersburg, Novosibirsk, Yekaterinburg, Nizhniy Novgorod) and in the four biggest cities without Moscow.

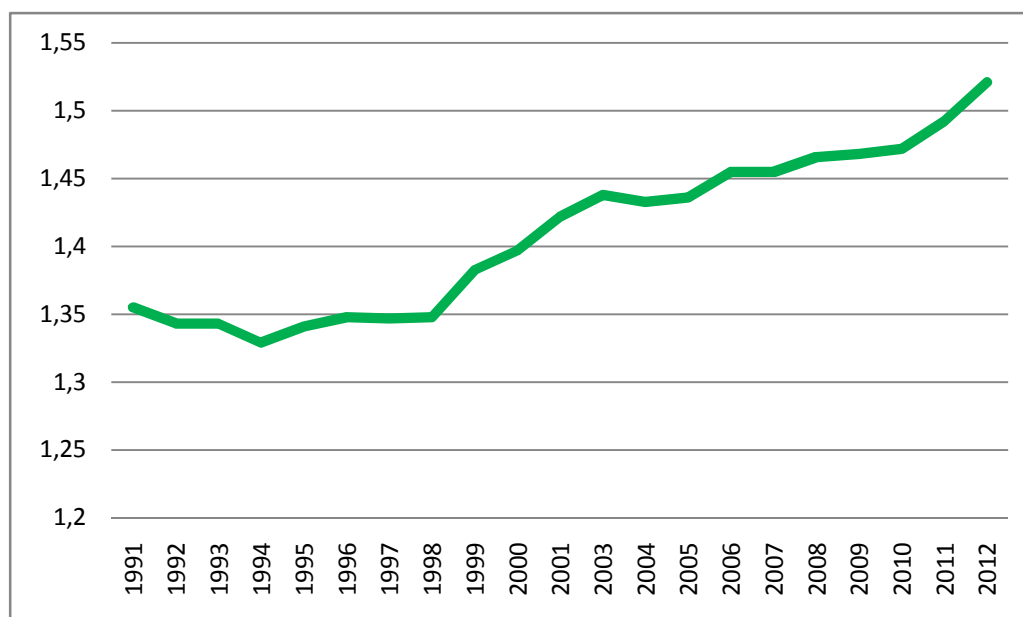
Share of the biggest cities is growing however this result is due to Moscow mainly. Share of the other biggest cities does not demonstrate essential growth. But share of big cities (population bigger than 500 thousand people) in the urban population is increasing (Appendix). We also observe growth of variance in size of cities (Picture 2).



Picture 1. Share of the biggest cities in the urban population

¹ Mikhailova T. Looking for multiple equilibria in Russian urban system. 2010, mimeo. Glazychev V.L. City without borders, M – The Territory of the future, 2011.

² Belkina T.D., Minchenko M.M., Nozdrina N.N., Protokalistova L.V., Shcherbakova E.M. Monitoring of the status and problems of development of cities of Russia in the years of reforms // Problems of forecasting, 2011, N 2. Zayonchkovskaya Zh.A., Nozdrina N.V. Migration experiences of the population of the regional centres of Russia (on the example of a survey in 10 cities) // Problems of forecasting, 2008, N 4. Zubarevich N.V. Russian cities as centres of growth// Russian expert review, 2006, N 2(16) Lappo G.M., Polyan P.M. The results of urbanization in Russia by the end of the XX century// Mir Rossii. – 1999, N 4. Leksin V.N. «Regional capitals» in Russian economic and social life// Voprosy ekonomiki, 2006, N 7. Leksin V.N. The city authorities: administrative centers of Russia// Mir Rossii, 2009, N 1. Nefedova T.G., Treyvish A.I. Theory of differential urbanization and hierarchy of cities in Russia at the turn of the XXI century // Problems of urbanization at the turn of the century, 2002.



Picture 2. Variance of logarithm of Russian cities population

Growth of big and the biggest cities were accompanied by a fall of population in the middle-size cities. The share of population of small cities did not decrease (Table 1). A similar situation is described in paper of Tabuchi T., Thisse J.-F., and Zeng D.-Z.¹; it takes place at the first stage of decrease of transaction cost and is a consequence of the increasing return to scale and monopolistic competition.

Table 1

Distribution of urban population in Russia, %

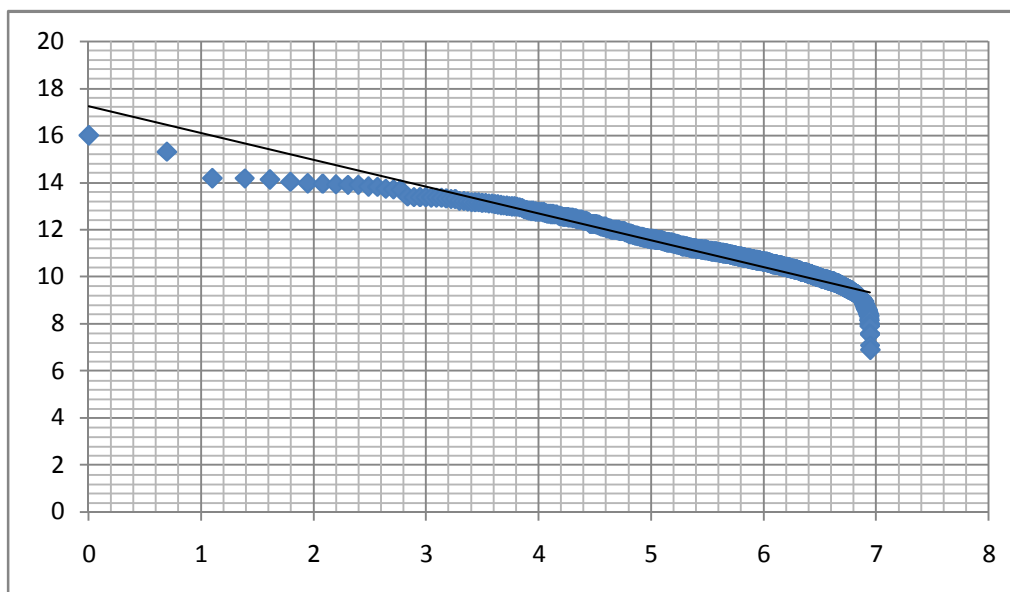
	1926	1939	1959	1970	1979	1989	2002	2010
Under 50 thousand	35,3	27,6	26,3	22,2	18,4	16,9	17,3	17,3
50–500 thousand	38,6	45,7	42,5	44,6	43,5	41,6	41,2	39,7
Over 500 thousand	–	26,7	31,1	33,2	38,1	41,5	41,5	43,0

Source: Scherbakova E.M. Global demographic barometer / Demoscop weekly. – 2010. – № 407–408. URL: <http://demoscope.ru/weekly/2010/0407/barom01.php>

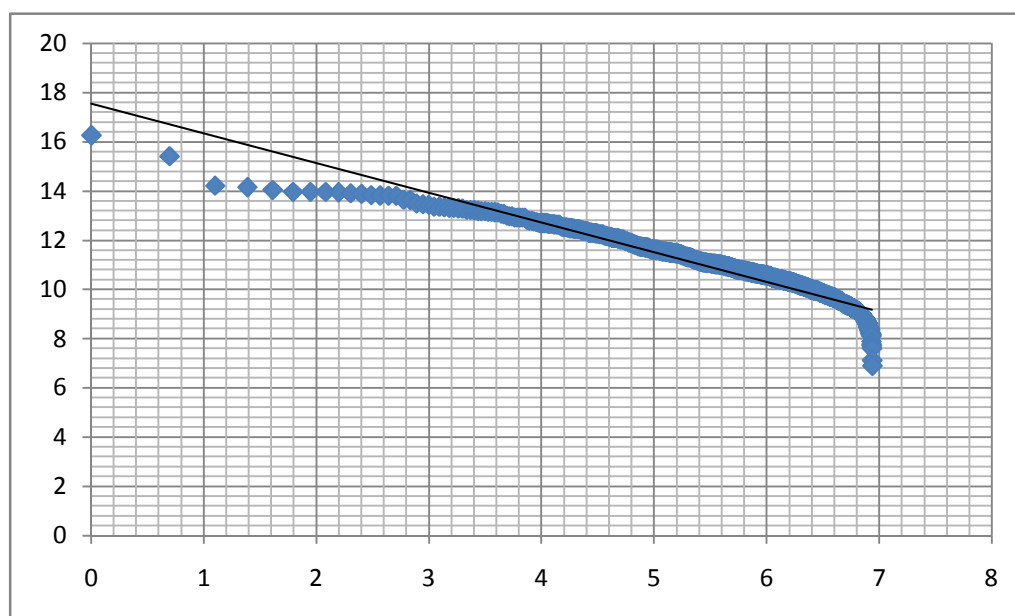
We observe concentration processes in the Russian urban system particularly in Moscow and in the majority of big cities. It is interesting to compare the distribution of a city size in Russia with the world regularities and predictions of Zipf's law.

Does Zipf's law hold in Russia? If we compare the distribution rank-size for 1991 and 2012 (Picture 3 and Picture 4), we may conclude that there is no a significant change in shape. The left part of the distribution in 2012 is still below the line, what means that size of the big cities is less than the predictions of Zipf's law. In the majority of the developed countries the biggest cities are positive outliers. While middle Russian cities are bigger than the law predicts.

¹ Tabuchi T., Thisse J.-F., and Zeng D.-Z. On the number and size of cities// Journal of Economic Geography, 2005, 5(4)).



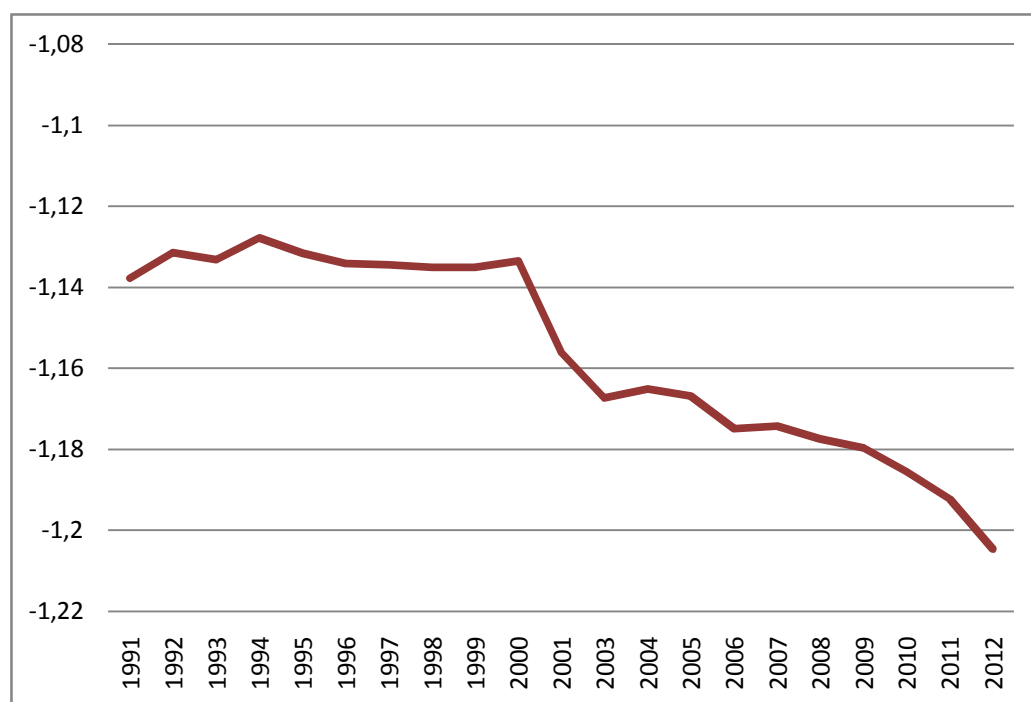
Picture 3. Zipf's distribution for Russian cities, 1991



Picture 4. Zipf's distribution for Russian cities, 2012

The dynamics of Zipf's coefficient is also of interest, namely coefficient β in the following regression $\ln S_i = \alpha - \beta \ln R_i + \varepsilon_i$, where S_i – logarithm of city population, R_i – logarithm of city rank. Coefficient β shows the proportion of number of cities having population bigger than S , it equals correspondingly β/S . In the classical case coefficient β equals 1. The dynamics of the coefficient also differs from the predicted (Picture 5); the absolute value of the coefficient is increasing.

All these facts do not confirm the hypotheses that Russia does not support Zipf's law due to the centralized planning of the spatial distribution of economic activity. Transition to the market economy has to eliminate the distortions and has to improve the rank-size regularity. However despite the introduction of the market mechanism in Russian spatial evolution we observe the further decline from the classical value.



Picture 5. Zipf's coefficient

Table 2

Estimates of regressions for city size

Independent variable	2009	2010	2011
Distance to railway station	-0,149 (0,014)	-0,149 (0,014)	-0,153 (0,014)
Population density	0,222 (0,029)	0,230 (0,029)	0,233 (0,032)
Monthly wage	0,696 (0,059)	0,681 (0,060)	0,700 (0,061)
Herfindal index	-0,297 (0,056)	-0,295 (0,058)	-0,316 (0,058)
Housing per capita	-1,467 (0,145)	-1,460 (0,163)	-1,324 (0,198)
Number of doctors per capita	0,131 (0,085)	0,197 (0,093)	0,205 (0,091)
Secondary education	-0,152 (5,522)	-1,370 (6,076)	1,855 (6,794)
Higher education	68,464 (6,691)	71,998 (7,223)	93,851 (9,683)
Administrative center of region	0,408 (0,154)	0,448 (0,152)	0,248 (0,168)
Number of observations	963	937	954

Factors influencing development of Russian cities. To find out the significant factors behind the spatial distribution of the economic activity in Russia we run regressions where dependent variable is logarithm of city population. Set of the independent variables is determined based on the assumption that cities use internal and external economic resources and political one. The opportunities to attract the external resources depend on transport infrastructure and on the distance to the nearest railway station. The internal resources are characterized by population density, wage level, diversification of economic activity, availability of housing, provision of medical care and education. The political resources are fixed by the administrative status of a city.

The majority of the independent variables create the problem of endogeneity. To solve this problem we use method of instrumental variable, the instruments are lagged variables. We run regressions for 2009, 2010 and 2011, and instruments are values for 2005.

The results of the estimates for size of city are presented in Table 2. A portrait of a big city is as follows: an administrative center near a railway station having high population density, relatively high wage, its economy is diversified, the city has deficit of housing and relatively good provision of medical care and education.

The results of the estimates for growth rate of city size are in Table 3. The portrait of the growing city is following: it is big but it is not an administrative center, mostly with high population density, and providing good social infrastructure and housing. So predictions of the agglomeration economy are mostly confirmed.

Table 3

Estimates of regressions for growth rate of city population

Independent variable	2009/2005	2010/2005	2011/2005	2010/2009	2011/2009
Distance to railway station	0,002 (0,001)	0,002 (0,002)	0,001 (0,003)	-0,0004 (0,001)	-0,001 (0,002)
Size of city	0,011 (0,003)	0,007 (0,002)	0,018 (0,007)	0,007 (0,003)	0,009 (0,006)
Population density	0,007 (0,002)	0,019 (0,004)	0,009 (0,006)	0,012 (0,002)	0,002 (0,005)
Monthly wage	0,008 (0,006)	0,010 (0,009)	0,019 (0,012)	0,005 (0,005)	0,012 (0,010)
Herfindal index	0,013 (0,005)	0,016 (0,008)	0,016 (0,011)	0,0001 (0,005)	0,002 (0,009)
Housing per capita	-0,016 (0,015)	0,094 (0,025)	0,252 (0,039)	0,079 (0,014)	0,287 (0,033)
Number of doctors per capita	0,012 (0,008)	0,036 (0,013)	0,049 (0,017)	0,012 (0,007)	0,034 (0,014)
Secondary education	-0,215 (0,529)	-1,097 (0,864)	-0,917 (1,261)	-0,791 (0,481)	-0,333 (1,058)
Higher education	1,541 (0,716)	2,592 (1,138)	14,282 (1,981)	1,528 (0,633)	12,305 (1,662)
Administrative center of region	-0,041 (0,015)	-0,072 (0,022)	-0,229 (0,031)	-0,031 (0,012)	-0,190 (0,026)

CONCLUSIONS

Development of the Russian urban system in the transition period followed some world tendencies however did not confirm all the predictions proposed in literature. We observed the concentration of urban population in large cities. And forces behind this process are in accordance with the hypotheses of the agglomeration economics. They include size of the market, diversification of the economy, and the infrastructure. But the agglomeration potential in the Russian economy was not enough. The rate of growth of metropolitan areas was not high. It was expected that the market forces would result in the active migration of population and in the economic activity in the big and the biggest cities. We did not observe very rapid concentration; the overall picture of distribution of Russian cities did not change significantly. Russian urban system is still far from the predictions of Zipf's law.

APPENDIX

Structure of Russian Urban System

	Number of cities and towns										Urban population, thousand								
	1989	2002	2003	2004	2005	2006	2007	2008	2009	1989	2002	2003	2004	2005	2006	2007	2008	2009	
Cities and towns, total	3230	2940	2932	2890	2560	2454	2443	2455	2417	107959	106429	106321	105818	104719	104105	103778	103773	103690	
Population, thousand																			
under 3	602	606	594	583	426	368	370	379	362	1084	1012	974	948	715	623	623	638	631	
3–4,9	541	414	415	408	341	320	318	323	320	2145	1642	1625	1597	1355	1275	1268	1291	1283	
5–9,9	795	683	686	674	607	588	581	579	564	5678	4880	4868	4790	4380	4220	4160	4162	4047	
10–19,9	564	524	526	521	484	480	477	482	475	7873	7325	7330	7272	6796	6719	6676	6752	6629	
20–49,9	398	383	383	377	375	374	376	371	376	12532	12277	12290	12123	12066	12064	12147	12034	12127	
50–99,9	165	163	162	162	158	156	154	157	156	11286	11083	11024	11085	10831	10747	10672	10960	10889	
100–499,9	131	134	133	132	135	134	132	129	129	28162	28391	28153	27986	28027	27987	27317	27008	27042	
500–999,9	22	20	20	21	23	23	24	24	24	14040	12403	12398	13453	14968	14903	15360	15352	15388	
Over 1000	12	13	13	12	11	11	11	11	11	25159	27416	27659	26564	25581	25567	25555	25576	25655	
Cities, total	1037	1098	1097	1097	1099	1095	1095	1096	1099	94450	95916	95874	95700	96039	95808	95565	95522	95609	
Population, thousand																			
under 3	7	11	11	11	12	11	11	11	11	12	23	23	22	25	22	21	21	20	
3–4,9	17	21	20	22	22	24	24	24	25	73	88	82	91	93	102	101	100	104	
5–9,9	82	101	102	103	101	100	103	105	107	629	772	773	786	777	768	789	800	816	
10–19,9	243	277	276	277	280	280	280	283	282	3611	4094	4063	4086	4122	4101	4102	4150	4115	
20–49,9	360	358	360	357	357	356	356	352	354	11595	11646	11699	11627	11615	11611	11648	11555	11580	
50–99,9	163	163	162	162	158	156	154	157	156	11169	11083	11024	11085	10831	10747	10672	10960	10889	
100–499,9	131	134	133	132	135	134	132	129	129	28162	28391	28153	27986	28027	27987	27317	27008	27042	
500–999,9	22	20	20	21	23	23	24	24	24	14040	12403	12398	13453	14968	14903	15360	15352	15388	
Over 1000	12	13	13	12	11	11	11	11	11	25159	27416	27659	26564	25581	25567	25555	25576	25655	
Towns, total	2193	1842	1835	1793	1461	1359	1348	1359	1318	13509	10513	10447	10118	8680	8297	8213	8251	8081	
Population, thousand																			
under 3	595	595	583	572	414	357	359	368	351	1072	989	951	926	690	601	602	617	611	
3–4,9	524	393	395	386	319	296	294	299	295	2072	1554	1543	1506	1262	1173	1167	1191	1179	
5–9,9	713	582	584	571	506	488	478	474	457	5049	4108	4095	4004	3603	3452	3371	3362	3231	
10–19,9	321	247	250	244	204	200	197	199	193	4262	3231	3267	3186	2674	2618	2574	2602	2514	
20–49,9	38	25	23	20	18	18	20	19	22	937	631	591	496	451	453	499	479	547	
Over 50	2	–	–	–	–	–	–	–	–	117	–	–	–	–	–	–	–	–	

IS THERE A LINKAGE BETWEEN POVERTY AND DEVELOPMENT OF SMALL ENTERPRISES IN RUSSIA?

*Vera G. Basareva*¹

INTRODUCTION

Russian reforms were accompanied by deep economic depression that led the population to impoverishment, low consumption and dramatic polarization of incomes. At the same time, reforms have removed the ban on private entrepreneurship, changed the size category of small enterprise, switched on market mechanisms which demonstrated very vividly the inefficiency of many of former industrial giants. Very soon small enterprises began to appear, providing self-employment, employment and new sources of incomes.

When questioned during numerous interview surveys the entrepreneurs say that their principal problem is liquidity constraint caused by extremely low effective demand and insufficient market capacity. Where a great part of regional residents have low incomes and low living standards their demand for products of small enterprises is low. At the same time, new jobs in the new-enterprise sector provide new incomes and, thus, help to fight poverty. What is, then, the cause and what is the effect of the linkage between poverty and self-employment? This question is far from idle. In Russia it is associated primarily with the strategy in use of budgets of all levels (federal, regional, municipal). The answer to this question is important also for western countries who give aid to Russia to implement the reforms. As a rule, financial sources of aid to small enterprises and to reduction of poverty are the same.

Then, where to assign the funds in the first place? How to fight poverty through self-employment and what policy to choose at federal and regional levels? What regional characteristics must be taken into account when deciding on this strategy?

The main interest in this paper is to answer these questions and reveal factors underlying the level of wealth (poverty) and new-enterprise formation in the regions; to explore how deep they affect each other and how to make use of the revealed patterns.

LITERATURE REVIEW

This article makes an attempt “to build a bridge” between small enterprises and poverty of the population, examining the linkage between these processes. Until now most authors concentrated only on one side of the process: either level of poverty and inequality or development of new enterprises.

Substantial contribution to the research of poverty and inequality was made by Atkinson (1987), Foster, Greer and Thorbecke (1984), who suggested several variants of the so called poverty line. In order to compare incomes and wealth, Sen (1976) suggested a few axioms and introduced a function of personal utility.

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Of Russian researchers we note Korchagina, Ovcharova and Turuntseva (1998) who attempt at re-estimation of official poverty statistics in Russia. They use per capita consumer spending including not only money expenses but money equivalent of food produced on individual plots and of such crucial components of the economic potential of households as movable and immovable estate.

Shiviyakov and Kiruta (1999) show that the problem of reduction or total elimination of poverty in Russia is only little related to insufficient social subsidies but is caused largely by limited opportunity for the households to put to use their own potential of economic activity.

This potential is realized primarily in self-employment, creation of small enterprises. Kornai (1990) argues that formation of new enterprises is crucial in stimulating growth in post-socialist economy. The crux of his argument is that new enterprises are relatively free of the kinds of distorted incentives that influence state-owned enterprises, and are therefore relatively efficient and responsive to market conditions.

Blanchard and Kremer (1997) note that by providing expanded employment opportunities, new enterprises better enable politicians to implement efficiency reforms, which reduce state-sector employment without losing political support. The authors emphasize the importance of new-enterprise formation in mitigating output reductions resulting from the restructuring and privatization of state enterprises, and breakdowns in the state supply system.

Loveman, Sengeberger (1991) show that in advanced countries the surge in the number of small enterprises is accounted for by rising incomes of households: opportunities appear to satisfy more diversified needs and to segment markets, and small business is more adaptable in this than large companies. They performed empirical analysis based on data from six countries members of OECD and showed that increment in the number of employed in small enterprises is hinged to industrial restructuring of two types: decentralization of enterprises and mergers of new small enterprises. In the view of these authors, this relationship is response to increased consumer demand for more diversified commodities.

Keeble (1990) suggested a few theoretical models to explain processes of emergence of new small enterprises in England, including the model of income growth of households, which leads to subsequent change in the market demand and formation of new small firms.

O. Blanchard, A. Shleifer (2000) theoretically defended a proposition that growth arises if regional governments administer a policy stimulating the formation of new enterprises. And, finally, Berkowitz and DeJong, (1999) using statistics on Russian regions argue that the new-enterprise growth promotes growth in per capita incomes thus providing regional growth.

As is seen from this brief review of literature, different authors explored new-enterprise formation and its influence on per capita incomes. Some writers examined diversified consumer demand as the factor of establishment of small enterprises. This paper provides integration of these two approaches and a statistical check of the linkage between wealth and self-employment, which has not been done before.

CONCEPTUAL FRAMEWORK

In pre-reform Russia the population was employed largely in the budget sector where only wage determined the level of incomes and, therefore, level of wealth. The opening of any small enterprise is the result of the choice made by a concrete individual to change his status by moving from state sector to sector of self-employment. The conceptual framework of the research is drawn on a model which binds the behavior of the individual maximizing his utility with a model of the aggregate demand-supply of labor at the aggregated small enterprise segment. This shift has allowed us to link the major determinants of individual's movement to self-employment with factors of new-enterprise forma-

tion and to project the influence of particular factors on labor demand and supply; to bind household wealth with new-enterprise formation.

Consider the economy of a particular region consisting of two sectors. The first sector- the traditional sector- will be called the wage sector. The other sector is that of small enterprises. This sector includes not only self-employed business owners, but also those employed in small businesses.

N – is the total employable population.

Every person from N can either work in the wage sector, or be an employee in a small enterprise, or set up a new enterprise himself. The employable population, therefore, is divided in the following way:

$$N=L_1+L_2+E+L_0,$$

where

L_1 is employment in the wage sector ,

L_2 is employment in small enterprises ,

E are the individuals who made the self-employment decision and became entrepreneurs.

For simplicity, assume that one entrepreneur owns only one small enterprise,

L_0 are those unemployed, including voluntarily unemployed. Shadow employment is not considered.

The decision of each individual i , $i = 1, \dots, N$ will be modeled on the basis of discrete choice, that is assuming that he chooses out of a number of alternatives and decides on that which gives him maximum utility u_i .

Assume that an individual maximizes his utility by setting up a small enterprise. Then he must have entrepreneurial vision and sufficient capital. We can presume that if an individual has no entrepreneurial vision or capital, his utility from a small enterprise is minus infinity.

Let β be a proportion of the employable population with entrepreneurial flair. These people see opportunities where others do not.

There exist a multiplicity of potential projects for small enterprises, for which different amounts of capital are required; this amount is k . The capital is assumed to be randomly distributed among the population. The relevant function of the density for those who possess entrepreneurial vision is $\varphi(k)$; k lies between 0 and 1. For convenience, normalize the richest person's capital assets at unity. The proportion of those with capital less than k is $\Phi(k)$. That is

$$\Phi(k) = \int_0^k \varphi(k) dk .$$

Since in the economy there is asymmetry of knowledge and the profit from a project can be estimated only by a person with entrepreneurial capacity, there is a low probability that a potential entrepreneur without capital can get loan for his project. The probability of getting a loan is ρ .

It is natural to assume that among projects the first to be implemented are those that require less expenditures of capital. The boundary capital is k^* , that is the amount required to implement a marginal project by a marginal entrepreneur. Projects requiring greater capital are not implemented. Knowing k^* , we could estimate the number of entrepreneurs. The probability that an individual will have capital sufficient to set up a new enterprise is

$$\int_{k^*}^1 \varphi(k) dk = 1 - \Phi(k^*).$$

To this probability the probability of obtaining a loan by people without sufficient capital should be added:

$$\rho \int_0^{k^*} \varphi(k) dk = \rho \Phi(k^*).$$

The number of entrepreneurs E will be the sum of these two probabilities multiplied by β and by the total employable population N :

$$E = \beta \cdot N \cdot \left(\int_{k^*}^1 \varphi(k) dk + \rho \int_0^{k^*} \varphi(k) dk \right) = \beta \cdot N \cdot (1 - (1 - \rho)\Phi(k^*)).$$

Let $\pi(k, w_2)$ be the profit from a project requiring capital k , while wages in the small business sector are w_2 , and in the wage sector, w_1 . Profit includes, among other things, the entrepreneur's satisfaction from his activity. It is normal to believe that π is a function increasing in k since the first projects to be implemented are the more profitable ones, yielding higher profits. Defining such a function we assume that if some entrepreneurs have already established small enterprises, the same opportunities are not narrowed to others.

Consider the decision made by a typical entrepreneur who has the possibility to set up a small enterprise. We assume that he makes his decision based on his function of utility, $u_E(\pi)$. He compares the expected utility of the venture with the utility \bar{u}_E that he could get from another activity. The expected utility is estimated taking into account probability μ that the newly created enterprise will go bankrupt and that the entrepreneur will get zero income. The probability μ is the determinant of the small business risks. The level of utility \bar{u}_E can be also determined, among other things, by the wage obtainable by the person as an employee either in the wage sector or in the small business sector. Therefore, the minimum level of small enterprise profitability which makes sense for a typical entrepreneur to create a new firm, π^* , is determined by the following equation:

$$(1 - \mu)u_E(\pi^*) + \mu u_E(0) = \bar{u}_E(w_1, w_2).$$

This relation sets the boundary π^* as a function of the risks and income from alternative activities:

$$\pi^* = \pi^*(\mu, w_1, w_2).$$

The condition of utility increase in profit from self-employment ($u'_E > 0$), and the condition of utility increase in wage rates ($\bar{u}'_{Ew_1} > 0, \bar{u}'_{Ew_2} > 0$) determine the kind of relation of π^* on parameters:

$$\frac{\partial \pi^*}{\partial \mu} > 0, \quad \frac{\partial \pi^*}{\partial w_1} > 0, \quad \frac{\partial \pi^*}{\partial w_2} > 0.$$

The relation for the boundary size of capital, k^* , has the form:

$$\pi(k^*, w_2) = \pi^*(\mu, w_1, w_2).$$

Hence

$$k^* = k^*(\mu, w_1, w_2).$$

The form of the function of labor demand of small enterprises is determined by the relationship of k^* to μ, w_1, w_2 .

$$L_2 = L_2^D(w_2, \mu, \rho, \beta, B_2, w_1).$$

The demand function also includes parameters ρ and β , determining the number of small enterprises and exogenous factors B^2 affecting small enterprises.

On the other hand, consider the wage sector of the economy. For simplicity, it will be modeled on the basis of the aggregate production function $f(L_1)$. Then the production function has the form:

$$f(L_1) - w_1 L_1.$$

Maximizing this function in L_1 , we get the standard condition of the first order:

$$f'(L_1) = w_1,$$

which means that wages are equal to marginal labor productivity.

The function of marginal labor productivity is, therefore, the inverse function of labor demand in the wage sector:

$$f'(L_1) = w_1^D(L_1).$$

Assuming the decreasing effect, the inverse demand function $w_1^D(L_1)$ is decreasing. Converting this function, we obtain the direct demand function $L_1^D(w_1)$.

Assuming the production function's dependence on some exogenous factors B_1 , i.e., $f = f(L_1, B_1)$, demand will also be a function of these factors, that is:

$$L_1 = L_1^D(w_1, B_1).$$

The labor demand in our model draws on the model of discrete choice. Individual i makes a choice out of three utilities: the utility of working in the wage sector $u_i(w_1, A_1)$, the utility of working in a small enterprise $u_i(w_2, A_2)$ and the utility of becoming involved in activity outside the above sectors, including voluntary unemployment $u_i(w_0, A_0)$. Variables A_s , $s=0, 1, 2$, include all additional factors affecting the individual's decision. In this model we take them as exogenous, like w_0 , too. The individual chooses that type of employment from which he earns the greatest utility. According to this, we can write the following functions of labor demand in the two analyzed sectors:

$$L_1 = L_1^S(w_1, w_2, A_1, A_2, A_0)$$

and

$$L_2 = L_2^S(w_1, w_2, A_1, A_2, A_0).$$

Both functions include the same factors.

ASSUMPTIONS, ECONOMETRIC MODEL AND PROCEDURES OF ESTIMATION

The econometric analysis will be focused on empirical test of the assumptions ensuing from the theoretical model:

1. The new enterprise formation and wealth (poverty) correlate with each other. The new-enterprise level is related to the level of wealth (poverty) of the population. The less wealth (more poverty) in the region, the less new enterprises are there. The more there are small enterprises, the more the wealth (less poverty).

2. The new-enterprise level in a region correlates with individuals propensity to risk-bearing (the higher this propensity, the higher new-enterprise formation) and with the

presence of starting capital required to open own business (the higher initial capital available to households, the more new enterprises are created).

3. The new-enterprise level in a region is related to reform attitudes of its policy-makers and to economic potential of regional institutions. High potential of institutions and reform orientation of regional leaders encourage entrepreneurship.

4. Level of wealth (poverty) also depends on urbanization level, proportion of economically active population, unemployment rate and pre-transition initial conditions in the region. Poverty is lower in the regions with higher percentage of urban population, higher pre-transition growth, lower unemployment, higher percentage of economically active population.

These assumptions imply simultaneous estimation of two interrelated regression equations, that is, a system of simultaneous equations where dependent variables are new-enterprise formation and level of poverty in region i in year t , and the major regressors are regional social-economic characteristics.

We estimate the system of equations:

$$\begin{aligned} Small_{it} = & \alpha_{it} - b_1 IB_{it} + b_2 (Regvlst * BudGRm)_{it} + b_3 (Polor * Ostvklad)_{it} \\ & + \sum_{t=1995}^{1998} b_t dummy_{it} + \gamma_i + \varepsilon_{it} \end{aligned} \quad (1)$$

$$\begin{aligned} IB_{it} = & \beta_{it} + c_1 Small_{it} - c_2 Nastrud_{it} - c_3 City_{it} - c_4 GRP_{i1990} + c_5 Unemp_{it} + \\ & + \sum_{t=1995}^{1999} c_t dummy_{it} + v_i + u_{it} \end{aligned} \quad (2)$$

where

$Small_{it}$ – is number of small enterprises per 1000 inhabitants in regions i in year t ;

IB_{it} – is the measure of (wealth) poverty in region i in year t ;

$City_{it}$ – is the percentage of urban population in region i in year t ;

$Regvlst_{it} * BudGRm_{it}$ – is regional policy in region i in year t ;

$Polor * Ostvklad_{it}$ – is new-enterprise potential of region i in year t ;

$Nastrud_{it}$ – is workable population in region i in year t ;

GPP_{1990} – is pre-reform initial conditions in region i in 1990;

$Unemp_{it}$ – is unemployment rate in region i in year t ;

$dummy$ – is dummies for appropriate year;

γ_i, v_i – is fixed effect of spatial organization;

ε, u – is a symbol of error.

The model includes spatial and temporal dummies that reflect specifics of the region and a period of time.

Enterprise potential of a region. We assumed that a good indicator of low risk aversion risks can be stability of political preferences of the inhabitants.

In present-day Russia entrepreneurship is a new kind of activity. It is undertaken mostly by that part of inhabitants who have inclination, receptivity to social innovations and, in a broader sense, to economic and political reforms. The results of election campaigns in Russia rather consistently demonstrate political preference of electorate which can imply that behind these results steady factors of territorial differentiation of society in propensity to risk-bearing exist. Variable $Polor$ – stability of political preference of inhabitants estimated through processing the election data was taken from a database prepared on the order of the Russian Unions of Industrialists and Entrepreneurs. The higher $Polor$

variable, the more consistent and liberally oriented preferences are demonstrated by region's inhabitants and the higher proportion of them have low risk aversion.

Theory assumes that effect on enterprise formation is made by the share of inhabitants with low risk aversion and presumably necessary capital. The effect of *Polor* variable in our model is increasing (decreasing) according to the presence of capital to start up own business. For appraisal of this capital we used the indicators of balance on deposits in saving bank. We were guided by information obtained from questionnaire data of the surveys of entrepreneurs which show that starting capital for opening own business in Russia was, as a rule, borrowed from near relatives, acquaintances or was the property of the entrepreneur. Bank loans practically were not used because of high interest rates. Before price liberalization the inhabitants in Russian regions preferred to keep their money in the saving bank. Therefore, the entrepreneur potential of region – variable $Polor * Ostvklad_{it-1}$ – is determined in our model by the combined effect or product of two variables – *Polor* – assessment of propensity to risk and $Ostvklad_{it-1}$ – demand balances in saving banks in year $t-1$.

Variable $Polor * Ostvklad_{it-1}$ corresponds to our conceptual model where enterprise formation depends on the availability of required capital among individuals with low risk aversion.

Regional policy in a region. $Regvlast_{it} * BudGRm_{it}$ is measure of regional policy in region i in year t . The product of two variables is $Regvlast_{it} * BudGRm_{it}$. $BudGRm_{it}$ is indicator of economic potential of institutions in region i in year t . It is measured as ratio of expenditures of regional budgets to GRP in region i in year t . It is used in measures relative to national average.

This indicator was suggested by Kolodko (2000) and Popov (2000) who noted that the dynamics of state expenditures in the period of transition turns out to be a factor important for successful transformation. A sharp cutback of state expenditures is a straight way to the collapse of institutions and to deep fall in output accompanied by increased social inequality. This observation concerns not only the national but also the regional level as well.

For the regions in Russia at the beginning of perestroika not only the relative size of the institutions economic potential was very important but also the political orientation of those who disposed of these resources. As an indicator we used a combined effect of variables $Regvlast_{it}$ and $BudGRm_{it}$. Variable $Regvlast_{it}$ – the measure of influence of regional elite and the attitudes of authorities toward reform – is taken from the database prepared on the request of the Russian Union of Industrialists and Entrepreneurs. The higher is this measure, the more influential and more liberal is regional elite.

The statement that “elite as a variable” is central among the reasons for the regime downfall is a keystone in transition studies (Rustow, 1970). It is argued that the role of elite in nations in transition is multiplied many times since the process itself of necessity destroys the consensus within the old elite, creates a cleavage between old and new elite in the field of ideology demanding negotiations between the old elite and new public forces. The establishment of democracy requires that there is a moral concert within the elite (Higey, Burton, 1989).

The combined effect of variables $Regvlast_{it}$ and $BudGRm_{it}$ shows the presumed strategy of economic reformation. The higher this measure, the higher size of resources is under jurisdiction of liberally oriented government officials in the region and, therefore, the more probable is that economic transformations in the region will go in democratic direction, business risks will go down, credibility of business rules among entrepreneurs will enhance. This measure is one of those determining political risks.

Poverty. A difficulty arises in selection of measures of poverty and standards of living. We use here a conventional measure of poverty, which is percentage of inhabitants with incomes below poverty-line. Other determinants are estimated from Goskomstat data.

The model of (1)–(2) equations is estimated by two procedures: 2SLS (Two stage Least Squares) that is a special case of the instrumental variable (IV) estimators and FIML (full-information maximum likelihood) (Green W., 1997, Chapter 16).

The choice of this period is explained by that in 1995 small enterprises began to be defined in a different way than previously which changed their number against what it was in 1994, and this might cause distortions in estimation.

The assumptions are empirically checked through a system of simultaneous equations where wealth (poverty) is measured by percentage of population with incomes below poverty line.

The results of model estimation using the share of population living below poverty line as a measure of poverty are represented in Table 1 and 2. The model draws on data from 1995–1999. Endogenous variables in this model are: log small enterprises per 1,000 inhabitants and population with incomes below poverty line.

Equation 1: dependent variable is population with incomes below poverty line. Regressors are: logarithm of small enterprises per 1,000 inhabitants, percentage of unemployed to total economically active population, pre-transition regional conditions – relative GDP in 1990, yearly dummies.

Equation 2: dependent variable is log small enterprises per 1,000 inhabitants. Regressors are: population with incomes below poverty-line, regional entrepreneurial potential, regional policy, yearly dummies.

Thus, the level of new-enterprise development in Russia's regions and the level of poverty are interrelated endogenous variables: the poorer the population, the lower new-enterprise formation; the higher new-enterprise formation, the lower the measures of poverty.

Table 1

Model of wealth

	2SLS	FIML
Consta	32.435534085** [6.8588660202]	32.924470587** [5.7482399046]
Log new enterprises per 1,000 population	–7.4708606588** [–2.8829024731]	–8.0618091236* [–2.43049163]
Percentage of unemployed to total economically active population	1.1224719265** [8.1271855608]	5.7482399046** [8.0377899151]
Initial conditions of the region – GDP in 1990	–2.4611181688** [–2.8211422629]	–2.5701634151** [–2.9227322952]
Dummy1997	–7.5848567853** [–4.7078482252]	–6.2991213923** [–3.9138858367]
Number of observations	356	356
R ² arj	28.09%	27.5%
F statistics	F(4,351)=35.67254 [0.0000]	F(4,351)=34.80261 [0.0000]

In brackets t-statistics * – 5% level of significance, ** – 1% level of significance

Table 2

Model of new-enterprise formation

	2SLS	FIML
Consta	1.3912907324** [9.9522287479]	1.2718446043** [9.3114433357]
Population with incomes below poverty-line	−0.0117963288** [−3.8238041737]	−0.0092857272** [−2.992233465]
Regional policy	0.3991604369** [5.4045881004]	0.4494861122** [6.3121144313]
regional entrepreneurial potential	4.51041E-08** [4.6411009993]	4.247151E-08** [4.3826568126]
Dummy1995	0.20566368098** [3.6637938367]	0.1840167076** [3.2761770695]
Number of observations	356	356
R ² arj	21.7%	21.2%
F statistics	F(4,351)= 25.68985 [0.0000]	F(4,351)= 24.96339 [0.0000]

* –5% level of significance, ** – 1% level of significance.

CONCLUSIONS

In Russia in the period of transition impoverished was the most educated and high skilled part of the population. For this large group the most effective means of dealing with poverty was a policy promoting the development of small business. It was shown that the development of new enterprises and level of poverty are interrelated endogenous variables: the poorer the regional population, the lower the new-enterprise formation; the higher the new-enterprise formation, the lower the poverty. The level of small business corresponds also with regional entrepreneurial potential and political orientation of local leaders, and the level of poverty with the pre-reform conditions in the region, rate of unemployment, educational potential and labor potential, i.e., with the situation at the labor market. These conclusions indicate that problems of poverty and new-enterprise formation must be coordinated financially and organizationally. While at present they are the responsibility of different departments and, therefore, are not considered jointly, it is advisable not only to coordinate them but also to focus in a single body at the executive and legislative level: committees of Duma, Council of Federation, ministry or state committee. Similar changes would be made in regional and local administrations.

It is reasonable, in the development of budgets of all levels, to correlate poverty programs with those of small business, so that in assignment of federal transfers the indicators stimulating new-enterprise formation are included. In all forms of grants to territories the federal center must consider not only economic but also institutional characteristics of the regions: the influence of regional leaders, their cohesion, risk aversion of the inhabitants. Russia is a multi-ethnic country, and national traditions of many peoples living on its territory may blame entrepreneurship.

If self-employment is stimulated in a region with a high share of the poor, for example, through credits, then, most probably, such practice would be unsuccessful. Absence of effective demand for goods and services produced by new enterprises will make them bankrupt, not able to pay back the taken credits. The number of the poor will increase.

If social benefits are given to the poor, but new-enterprises are not stimulated, it will be a “trap of poverty” eliminating incentives to open business for fear of high risks. It is obvious that in regions with high poverty, the development of small business will be slow because of low demand. In such regions state activities to help the population is necessary. The support of new enterprises can be given in forms that set off the insufficient demand and guarantee to entrepreneurs their sales. For example, regional government may make order to small enterprises for their products.

The results of this work may also be used by policy-makers in Russia and by international funds and non-government organizations in their regional programs of social adaptation to changes. The theoretical propositions presume that poverty and small business linkage can be found not only in Russia but in other countries, too. Therefore, the practical advice of this work may be applicable not only in Russia.

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PRODUCTIVE FORCES SHIFT TO THE EAST: EVALUATION OF HISTORICAL EXPERIENCE AND CHOICE OF THE DEVELOPMENT PATH FOR THE 21ST CENTURY

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APPROACH TO QUANTIFICATION OF HISTORICAL EXPERIENCE

Economic development forecasting is an indispensable component of management, from family and corporation budgeting to that of associations of states, like the UNO. Apparently, the scope of forecasting and the kind of problems handled using projections vary depending on the general historical situation and stage of the historical development of a specific state. Whatever the case, the results of these projections underlie the decisions taken, which shape the way of national development. We interpret “historical experience” as an element of the system analysis of decisions made in the past, whose results we can evaluate in the present. To ensure that the approach is system-oriented, it is of vital importance to consider the pros and cons adduced in the past with respect to the decision in question. Moreover, it is these arguments that should be studied in the first place. Only their thorough analysis, taking into account the specific features of the period when a specific decision was made, will allow us to apply “historical experience.” According to Academician V. Alekseev, “In order for the science of history to answer the call of the times, it is necessary to switch, in the mass, from traditional descriptiveness to analyzing and forecasting; to learn to extract useful knowledge and apply it in social practice” (V.V. Alekseev, 2009, p. 113). In other words, historical experience should be applicable to the present-day decision-making, which shapes future development. In principle, reconstruction of historical events and virtual “playback” of hypothetical past events, when different from the decisions actually taken, are not rejected either (at least not by everyone).

The approach is not revolutionary. Back in 1960 in the USA, a new branch of knowledge – cliometrics – came into being. Basing on quantitative evaluation of historical events, it suggested building counterfactual models of historical facts. In 1993, the developers of this direction, Douglass C. North and Robert W. Fogel, were awarded the Nobel Prize in Economics. Especially popular with historians was hypothetical modeling of war conflict outcomes (Nekhamkin)³. Alternative economic development was not ignored either. For example, R.W. Fogel demonstrated that, contrary to the widely accepted view on the decisive role of the railways in the American economy, they were not absolutely necessary in explaining economic development in the late 19th c. and that their effect on the growth of GNP was less than three per cent.

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³ In his paper *Scenarios for hypothetical history: for and against*, V.A. Nekhamkin (*Vestnik Rossiiskoi Akademii Nauk*, Vol. 79, No 12, December 2009, p. 1099–1106) writes that it was Aristotle who raised the question, in its epistemological aspect, of appropriateness and limits of using “would have been” speculations in the science of history. The ancient Roman historian Titius Livius suggested the first description of a hypothetical war between Alexander of Macedonia and Ancient Rome, being interested primarily in the military specific aspect of actions and army preparation.

Analyzing hypothetical alternatives of national economic development proves to be helpful in learning the “lessons of the past.” It goes without saying that an adequate comparison with the current situation requires drawing up a distinct outline of the past economic conditions, in which general, specific, and individual features are identified. Only then will we be able to achieve the pragmatic aim of the research, namely, to obtain additional arguments for or against today’s decisions by referring to the lessons of the past. In natural sciences, construction of counterfactual alternatives is a well-established research technique; however, since economic history (the term “social history” sometimes seems more relevant) cannot be tested experimentally, the technique itself can be questionable with respect to providing proof. Retrospect forecasting is first done on the qualitative level, when researchers support their ideas using reasons taken from the past experience. The conditional mood allows them to identify the cause and effect relations that may have preserved their relevance to this day. In this way, they can separate realistic scenarios of the future from utopias, provide a better economic justification for their projects and practical recommendations for present-day decisions¹.

Identification of the key, historic periods and, to be more particular, of the key events allows finding additional arguments for or against the decisions taken today. Providing proof with respect to “historical experience” is of critical importance for supplying additional argumentation when choosing a specific and, as a rule, alternative decision on economy modernization. This is completely true of decisions on geographical allocation of investments, which predetermines the territorial structure of the national economy.

Among a variety of quantitative analysis methods (physical analogies, econometric techniques, role play, etc.) for alternative economic development, in our opinion, the input-output technique deserves special attention as the most consistent in reflecting the inner technological relationships between the economy actors. Time-consecutive changes in input coefficients are interpreted as technical progress. Besides, introduction of this technique into the spatial characteristic model of national economy², for some regions, allows assessing alternatives of Russia’s “widening” economic growth. In other words, it is possible to appraise the expediency of pursuing the policy aimed at the development and settlement of the Asian part of Russia – Siberia and Russian Far East³ – using historical analogies and geographical characteristics of an area under study.

Today, such a model for simulating the history of spatial economy of Russia/USSR/Russia from 1889 to 2009 has been developed at the Institute of Economics and Industrial Engineering, Siberian Branch of the Russian Academy of Sciences. The model has been extended to cover the period until 2029 (with year 2019 taken as intermediate) and verified.

¹ As a rule, projects significant for regional (to say nothing of national) economies should not only “ripen” in the minds of the people who implement them but also “fit” the existing technical, economic, geopolitical, and other conditions. There are many examples in history of gigantic projects that have never been carried out: for instance, the railways from Siberia to Alaska with a tunnel under the Bering Strait and the Baltic-Pacific Great Water Way. The first attempt to build the Suez Canal was made by Napoleon; however, at the time the situation was not favorable, and the project was implemented 70 years later. It is unlikely that the waters of the Siberian rivers will be directed to the Sea of Aral or the Pechora River will flow into the Caspian Sea. In China, by contrast, the project of redirecting the river flows from the south to the north is likely to be carried out in the near decade. How can we know that the project is “ripe”? Today, technology allows us to build a tunnel under the Strait of Bering; however, the project requires additional substantiation in terms of economy and geopolitics.

² Here we mean the optimization inter-industry interregional model (OIIM) developed in the 1960s-1970s by a team headed by A.G. Granberg at the Institute of Economics and Industrial Engineering SB RAS.

³ It is noteworthy that the above-mentioned V. Alekseev urges, in the same article, to apply more widely economic and mathematical tools for forecasting historical processes.

VERIFICATION OF THE RETROSPECT ECONOMIC DEVELOPMENT MODEL FOR RUSSIA/USSR/RUSSIA IN 1889–2009

As a model characterizing the development of Russian/Soviet/Russian economy within the period involved, we have taken the *multiperiod optimization inter-industry interregional model* in its statistic statement: all the balance terms are set for one year, the last in each of the periods at hand. However, as long as there is a number of these periods (each a decade long), this approach can imitate dynamic aspects, the more so that, in each period, some of the construction and machine-building capacities are intended for the projects that will pay back only in the subsequent period.

We have assumed the research results obtained by A.G. Aganbegyan and A.G. Granberg for 1959 (Aganbegyan A.G., Granberg A.G., 1968) as a “standard” inter-industry input-output model. The input-output model was constructed for the USSR as a whole, without breaking it into regions. The prices of the year were assumed not to vary throughout all the periods. Using these prices, the input-output models for the years 1889, 1899, etc., up to 2029 were made, with respect to three macro-regions of the USSR:

- European part of Russia/USSR;
- Asian part of Russia;
- other parts of Russia/USSR (Ukraine, Belarus, and other former USSR republics).

For each of the macro-regions, eight industries were considered: heavy industry, oil production, light and food industry, agriculture, construction, transport and communications, trade, and other industries. The first four industries were recognized as transportable.

We have made an assumption that throughout the period under study the same industries have preserved, naturally, with different coefficients of consumption and material, labor, and capital costs. If in the 19th century the bulk of the products consumed were those produced by agriculture, by the 21st century, consumption shifted towards heavy and light industry, construction, transport and communications. Assumptions were made concerning the hypothetical changes in the absolute terms of the equations: fixed allocations for the needs of the state combined with net exports/imports balance for certain industries.

The following criteria were adopted to compare the results of calculations done using the model and actual statistic data:

- Russia’s/USSR’s gross social product;
- Russia’s industrial output;
- Russia’s agricultural output;
- Russia’s/USSR’s gross domestic product.

The main source of information about a hundred years of Russian economy was the book by V.M. Simchera (Simchera, 2007¹). Let us refer to this alternative as “historical,” i.e. the one that took place in real life. Data for the period between 2019 and 2029 for the “historical” alternative were obtained with the help of an assumption of gradually slowing-down growth rates: from 6–7% in 2000–2009 to 5–6% in 2010–2019 and to 3–4% in the last decade.

The “basic” simulation alternative is the one that takes into account real historical events like construction of the Transsiberian Railways (TransSib) in the late 19th century, “shift to the East” that occurred in the 1920s and 1950s, construction of the Baikal-Amur Railways, and so on. Deviations of the “basic” alternative from the “historical” do not exceed 3% for each of the periods and comparison criteria. A somewhat larger deviation in capital investment is attributed to greater changes in construction estimate prices as compared with other industries and specific accounting techniques applied in construction facility accounting (partly owing to a large share of defense complex facilities). By and large, the contours of

¹ The book by V.M. Simchera contains data until 2004. Data for 2009 have been estimated basing on the average growth rate.

spatial allocation of both labor resources and industry capacities have been retained with respect of the three macro-regions of Russia/USSR. This suggests that the model has passed “verification” and gives an adequate reflection of the course of History. The calculation results are shown in Figures 1–3 and Tables 1–3.

Table 1

Gross social product of the Russian Empire/USSR; from 1999, of the Russian Federation alone (RUR billion, constant prices of the year 1959)

Year	Statistics ¹ (“standard”) Row 1	Results of decision taken Row 2	Deviation from “standard” data, %
1889	22.7	22.4	1.4
1899	27.6	28.1	–1.8
1909	32.1	32.4	–1.0
1919	22.9	22.9	0.0
1929	45.5	44.7	1.7
1939	102.8	104.0	–1.2
1949	167.5	161.1	3.8
1959	299.9	302.6	–0.9
1969	590.0	585.0	0.9
1979	998.8	969.7	2.9
1989	1408.9	1376.7	2.3
1999	491.0	476.1	3.0
2009	879.0	865.5	1.5
Forecast			
	Extrapolation on the basis of projected growth rates	Results of decision taken	
2019	1365.0	1361.5	0.3
2029	1925.0	1936.8	–0.6

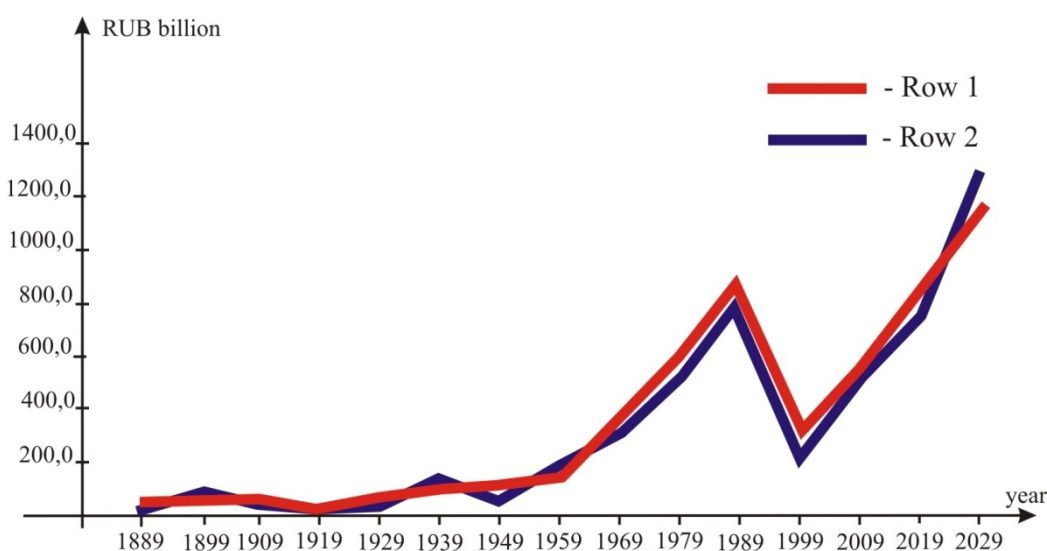


Fig. 1. Comparative changes in Russia’s (within the present boundaries of Russian Federation) gross social product: “historical” and “basic” alternatives

¹ The missing years – 1889 and 1899 – have been calculated on the basis of average values for the period 1900–1909r. Numbers for 2019 and 2029 have been determined using expert data.

Table 2

**Russia's (within the present boundaries of Russian Federation) gross industrial product
(RUR billion, 1959 constant prices)**

Year	Statistics ("standard") ¹ Row 1	Results of decision taken Row 2	Deviation from "standard" data, %
1889	1.2	1.2	-2.1
1899	1.7	1.7	1.2
1909	2.3	2.3	1.5
1919	0.51	0.5	0.0
1929	5.1	5.1	1.5
1939	23.5	23.5	-0.1
1949	42.8	41.7	2.6
1959	124.0	124.0	0.0
1969	268.2	266.6	0.6
1979	479.9	471.7	1.7
1989	682.9	690.4	-1.1
1999	346.5	355.1	-2.5
2009	660.0	657.2	0.4
Forecast			
	Extrapolation on the basis of projected growth rates	Results of decision taken	
2019	1000.0	996.0	0.4
2029	1360.0	1398.5	-2.8

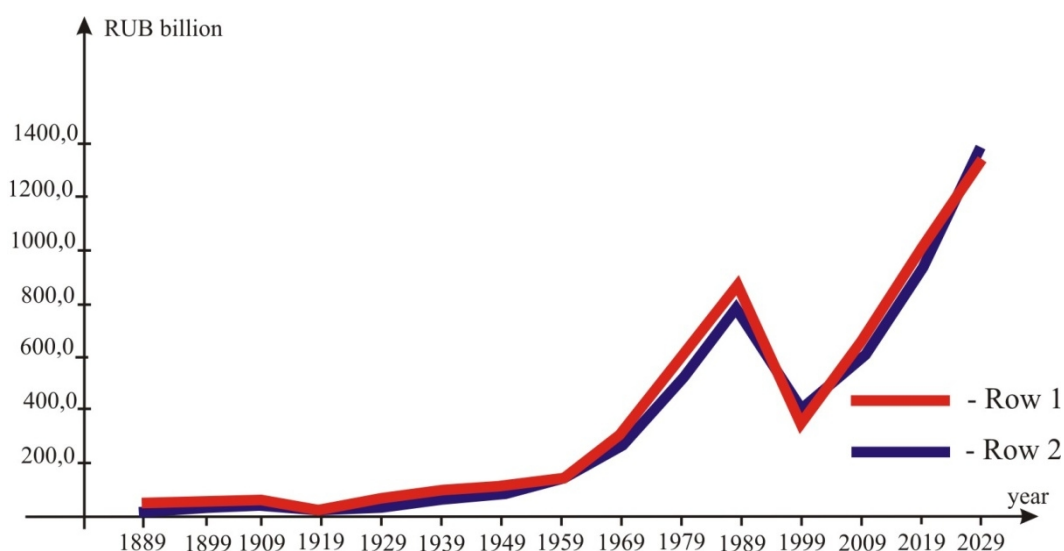


Fig. 2. Comparative changes in Russia's (within the present boundaries of Russian Federation) gross industrial product: "historical" and "basic" alternatives

¹ Here and in Table 2 "standard" stands for the data from V.M. Simchera's research, in the prices of 1959 prices.

Table 3

**Russia's (within the present boundaries of Russian Federation) gross agricultural product
(RUR billion, 1959 constant prices)**

Year	Statistics ("standard") Row 1	Results of decision Row 2	Deviation from "standard" data, %
1889	11.3	11.1	1.5
1899	12.7	12.6	0.7
1909	14.3	14.3	-0.6
1919	6.3	6.3	0.0
1929	13.1	12.9	1.8
1939	18.5	18.0	2.9
1949	15.2	15.6	-2.9
1959	26.0	26.7	-2.8
1969	36.9	35.9	2.5
1979	50.8	51.2	-0.9
1989	59.1	59.0	0.2
1999	27.6	27.1	1.9
2009	31.1	30.9	0.8
Forecast			
	Extrapolation on the basis of projected growth rates	Results of decision	
2019	40.0	39.8	0.5
2029	51.0	51.9	-1.8

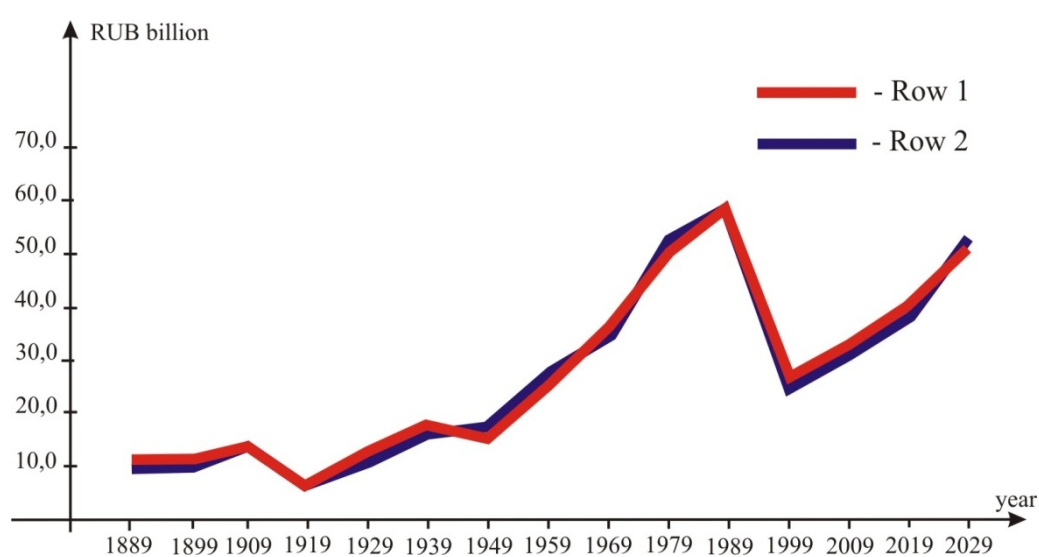


Fig. 3. Comparative changes in Russia's (within the present boundaries of Russian Federation) gross agricultural product: "historical" and "basic" alternatives

COUNTER-FACTUAL MODELING: DID WE NEED THE TRANSSIB AFTER ALL?

The first key period we set aside and, respectively, the first crucial decision (following in R. Fogel's footsteps) was a transportation project – construction of the Trans-Siberian Railroad¹. Below we can see the main results below (Figure 4).

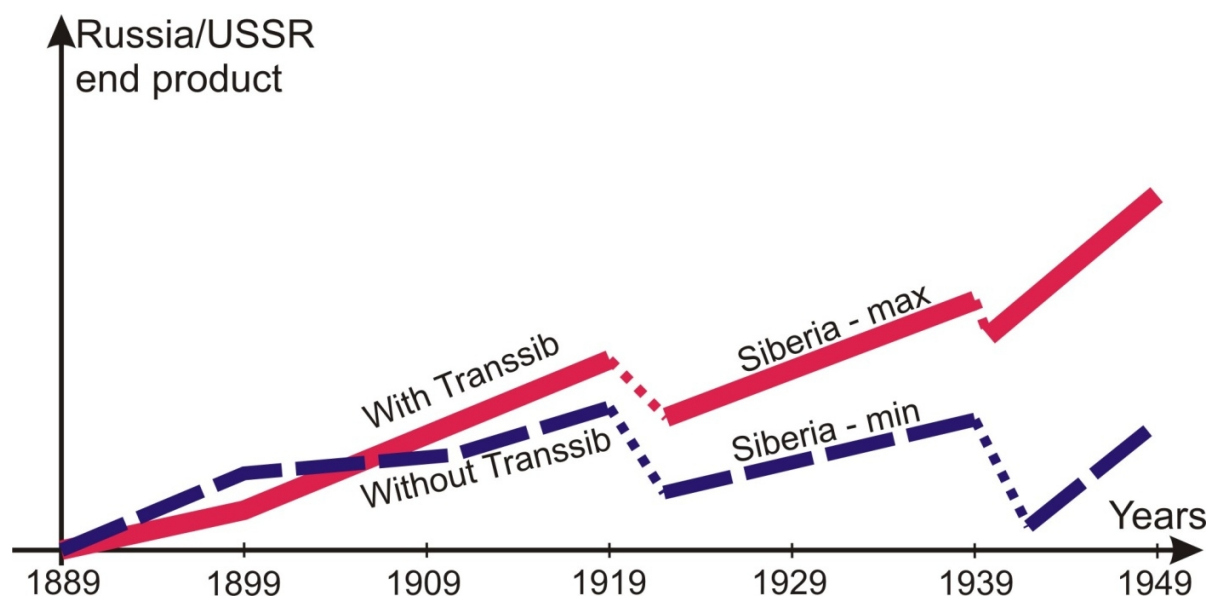


Fig. 4. Alternatives of Russia/ USSR development: late 19th to early 20th century

1. The “without TransSib” alternative leaves the Asian part of Russia underdeveloped for a long time, in need of import of most heavy industry and light industry goods. Export of agricultural products to the European part of Russia is negligible and shows only after the 1940s. The “with TransSib” alternative, on the contrary, demonstrates a strong demand for heavy industry goods in the Asian part, Urals and other regions of Russia/USSR.

2. In the initial period (1889–1899), the TransSib construction drew a lot of resources and labor from the development of other regions of the country, which shows in a somewhat lower final consumption.

3. From 1899 to 1909, the ongoing construction of the TransSib continues to slow down final consumption but the economy is able to develop faster, which is reflected in the aggregate volume of agricultural goods produced by all Russian regions. This increase is naturally attributed to the rapid growth in the Asian part. Industrial products are still predominantly supplied from the West to the East of the country.

4. The most noticeable gap in Russia's/USSR's development in the “without TransSib” alternative falls on 1919–1939. Here the danger of “individual,” separate development of the European and Asian parts (decreased exchange of goods) is clearly seen. “Self-sustainable” economies are formed, though with a much lower (by 9%) final consumption. Siberian bread can no longer make up for bad harvests in Ukraine and Volga Region that occurred in the 1930s, which could have brought about additional (as compared with the actual) many millions starvation victims.

¹ The result of these calculations is given in detail in the article by V.V. Vorobiev, V.Yu. Malov, and B.V. Melentiev *The use of economic-mathematical modeling in evaluating the historical experience of implementing large infrastructure projects* // Transformation of Russia's space: social-economic and natural-resource factors (full-scale analysis): [Proceedings of the XXV Annual Session of Economy and Geography Section, International Academy for Regional Development and Cooperation, Tikhvin, June 2008] / [ed. by S.S. Artobolevisky and L.M. Sintserov]. – Moscow: Institute of Geography, Russian Academy of Sciences, 2008. – P. 118–129.

5. The danger of these tendencies going further is the most noticeable when we compare the two alternatives during the World War II and subsequent restoration period. If the same percentage of the production potential is assumed to be lost from 1941 to 1945 in different regions across the country (the regions are shown separately in the present statement), the result is evident. The loss is more dramatic in “other parts of the country” like Ukraine, Byelorussia, and Baltic Republics of the USSR. Siberian heavy industry, not developed sufficiently in the previous years, cannot compensate the losses suffered by the European part. Even though restoration of everything ravaged by the war requires a contribution of the Asian part, it is much smaller. If the restoration is assumed to go at the same pace as in the “with TransSib” (supposing it was constructed in 1945–1955) alternative, by 1989 final production would still be 30–35% lower.

Summing up, in contrast to R. Fogel’s conclusion as to the importance of railroad construction in North America, we can state that for Russia/USSR railway construction (even limited to the example of the TransSib) was absolutely indispensable for successful economic development.

In a similar way, we could “reconstruct” hypothetical events for the situation when the Siberian Branch of Sciences was not established in industrially underdeveloped Siberia. In this case, it is highly unlikely that as many new oil and gas deposits would have been discovered in West Siberia and a chain of hydropower stations and power-consuming enterprises would have been started in the Angara-Yenisei region. Whether this would have been an advantage for the innovative development of the European part of Russia is open to further discussion and investigation.

The proposed approach to counterfactual simulation has been extended to include the period of 1949–2009, and projections for 2029 have been developed. The main premise is a much poorer (as compared with real life) development of the Russian Asian part but a quicker development of the European part and other Soviet Republics. The TransSib is assumed to have been constructed in the real time – early 20th century – and until 1949 the development went by the “laws of history.” In this manner, the model shows a growth in all parts of the country that took place until 1949. Changes appear when the following counterfactual assumptions concerning the USSR economic development are made, beginning with 1949:

- The USA would have not attacked the USSR, even if the Asian part lagged behind dramatically in its development: the nuclear shield could have been put up in other parts of the USSR. In the East, the situation remained calm, even in terms of politics, despite the fact that industrial development did not go beyond the Urals.
- Oil would have been discovered in the European part of Russia and in other republics. However, its production is much lower than that achieved in West Siberia.
- Until the 1980s, heavy industry could have developed successfully in Russia’s European part thanks to export of raw materials from abroad: Siberian resources were not in great need and environmental problems were not so urgent. Only after the 1980s this problem became critical, and the potential for the heavy industry growth in the European part became lower.
- In principle, the technologies are the same as in the case of accelerated development of the Asian part since these spatial shifts could hardly have affected technical progress and international cooperation. The lack of “big oil” would have hardly encouraged a faster progress in engineering and technologies, like a breakthrough in electronics that occurred, for example, in Japan and South Korea.
- Atomic power production domineers in the European part. The construction of hydropower stations and Kansk-Achinsk fuel and power complex is frozen.

- Capital output ratio of new construction in the USSR as a whole becomes slightly lower. Labor resources increase not in the Asian part but in the European part and other USSR republics.
- All additional oil export is accompanied by an equal import of other industries production, light industry and agriculture in the first place.
- Labor resources are redistributed: the manpower “lost” by the Asian part would have been “added” to the European part and other republics (ratio of 0.8:0.2).

This list can (and must) be extended. The main challenge is formalizing hypotheses in terms of the model chosen, OIIM, which is characterized by a very high level of index aggregation. The control variables in this model are the scale of the assumed (desirable) increase in the overall production of all industries in each of the three USSR/Russia’s macro-regions. The scale is restricted by the construction complex capacity (as a tool for material implementation of investment), set in the previous decade.

The main counterfactual modeling results for the period from 1949 to 2009 are shown in Figure 5.

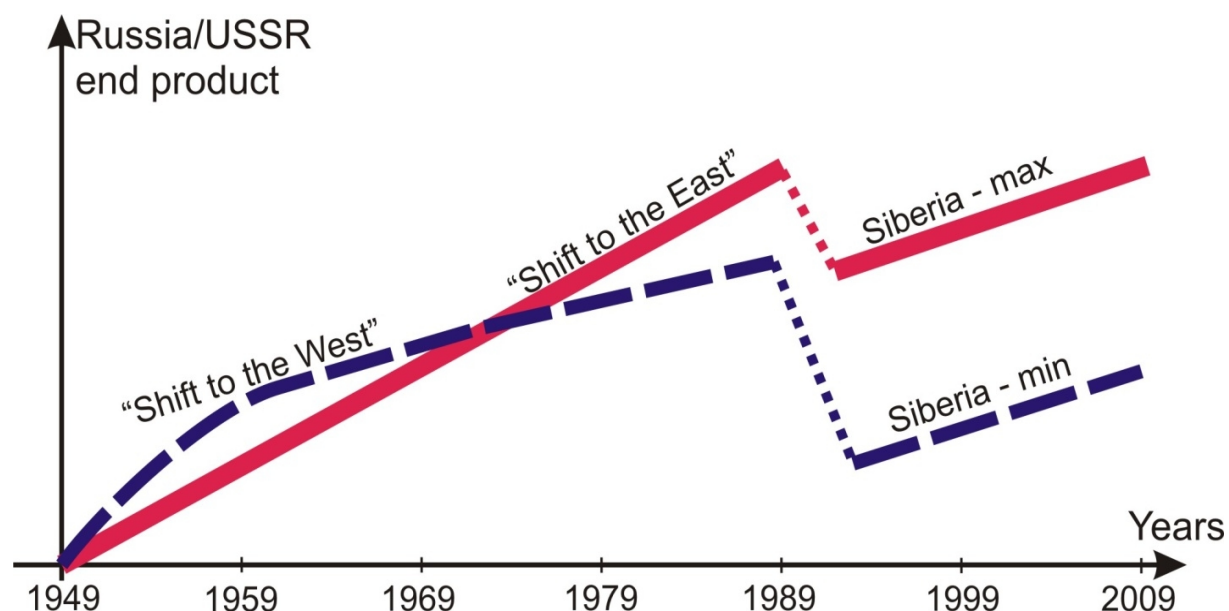


Fig. 5. Alternatives of the USSR/Russia development: the second half of the 20th century

CONCLUSIONS

- In 1949, an additional increase (by 1%) in final consumption could have been achieved – approximately RUR 1 billion in 1959 constant prices. The explanation is evident: it would not have been necessary to channel investment to “expensive” for construction regions of Siberia and Russian Far East.
- In 1959, the additional increase could have equaled 1% as well, though it would have been RUR 2 billion. Labor force is not transported to the Asian part as much as it was done in the “basic” alternative. Return in the European part is higher, and the USSR does not have any noticeable oil exports.

- Year 1969 would have been the most successful: the final consumption increase would have amounted to RUR 14 billion (2.5%). Less oil would have been exported than possible. On the other hand, light industry, food industry and agriculture would have developed faster in the European part and other USSR republics. Labor is the most significant factor restricting economic growth.
- In 1979, the final consumption loss would have added up to RUR 30 billion (4.5%). This is accounted by plummeting oil exports (as compared with the basic alternative) and, consequently, a respective decrease in light industry, agriculture, and machine building imports. Since labor intensity in oil production is lower than in light industry or machine building, the USSR would have been a loser in this international exchange. In other words, for the USSR it would make sense to employ a person in oil production rather than in light industry or machine building. These are general laws of international commerce; they work only ALL OTHER THINGS BEING EQUAL, which virtually never happens for geopolitical reasons (economic embargoes, pirates, strategic interests, etc.), among others.
- In 1989, the loss would have increased even further, to RUR 70 billion (9%).
- In 1999, the loss would have added up to “just” RUR 50 billion but this would amount to 20% of Russia’s final consumption, primarily, because a major (larger than in the “historical” alternative) part of heavy industry, light industry, and agriculture happened to be OUTSIDE Russia, and to reconstruct them, construction industry would have had to grow very fast, which would not have been possible. The industry of the Asian part of Russia would not have been able to make up for the losses incurred as a result of a collapse of economic relations, and there would not have been enough oil to cover these losses. Labor would have been redundant in all of Russian regions as many facilities would have been inoperative (ruined physically).
- In 2009, the loss would have amounted to 10%, or about RUR 30 billion but the European part would have gradually resumed its growth. Oil export would have increased as well, including that from the Asian part. Heavy industry would have been on the rise in the Asian part too, though the absolute volume would have been insignificant because of the former slow development both of machine building and construction industry.
- Year 2019: The growth of all industries of the Asian part would have been curbed by a lack of labor resources, redundant in the European part. The migration would have been checked by the difficulty in creating favorable living conditions in the Asian part. The losses would have added up to 6–7% (compared with the basic alternative projections).
- Year 2029: Under the assumption of a rapid growth of labor resources in the Asian part (by 40% in ten year, though they are still scarce) loss in final consumption would have gone down to just 2.5 %, and the absolute production volumes in the Asian part approach these of the “historical alternative”.

Dipping into the future and continuing the logic of the fifty-year long substantiation of strategic projects for the development of Siberia and Russian North (including the Arctic coast and waters), we can say the following:

1. Projects of this scale should not be assessed based on market criteria alone. History shows that “northern” and especially “Arctic” infrastructure projects can pay back in 20 or 30 years.

2. Shrinkage of Russia's economic space (as well as political, strategic, etc.) with an aim of achieving "transitory market effects" can turn in the future into heavy, maybe even irreparable, losses for the whole country.

3. The statesman (read economic) approach to megaprojects evaluation is a requisite for the steady development of all, especially remote and extreme regions of the country and for preserving the common economic space.

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INSTITUTIONAL BARRIES AND INSTITUTIONAL SUPPORT FOR THE IMPLEMENTATION OF INNOVATIONS IN RUSSIA

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The paper presents some results of research of innovations development in Russia in the last twenty years, the formation of innovation systems in Novosibirsk since the late eighties of the twentieth century. The key problems concerning the development of innovation system in Russia are identified. From the standpoint of authors the consistent solution of these problems will significantly increase the effectiveness of the national innovation system and accelerate the economic development of Russia.

The transformation of the Russian economic and social systems taking place over the past two decades coincided with two global processes occurring in the world: innovative development and globalization. In the late eighties and early nineties of the twentieth century social, scientific, technological and economic potentials of Russia gave it a good chance to retain its leading position in the world. Unfortunately, these opportunities have not been taken advantage of. In recent years, the Russian society has realized that the processes of globalization and technological challenges are fundamentally important. The consequences resulting from a passive stand in relation to these challenges, such as irresponsiveness of industry to innovations, loss of qualified personnel, the lag in key scientific and technological areas and others have turned to real threats. The chief elements in solving all these problems become innovation development institutions (institutions of the national innovation system (NIS)), and the main issues that impede these processes – inadequate development of a number of institutions of the modern Russian society.

Today, some elements of NIS are the result of deliberate government policy. However, this policy is largely fragmentary and episodic, not taking into account the overall socio-economic background. Development effectiveness of NIS depends on the correctness and accuracy of the assessment of the problems hindering the development of the innovation, and of the ways to solve them. The analysis shows that the very presence or absence of individual institutions is not a guarantee of success or failure in the development of the innovation economy. Crucial here is the interior design, “filling” of these institutions and coordinated, balanced development.

Results of the research. Analysis of the existing approaches to the definition of NIS [1, 2, etc.] and our own research conducted over the past two decades suggest that the effective innovative economic development of a country, a region as well as that of individual municipalities assumes the existence and the development of NIS on a specific ter-

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territory that includes interrelated elements: 1) innovation-oriented authorities; 2) developing scientific, technical and educational complexes; 3) a motivated high-tech industry; 4) infrastructure for innovation; 5) mechanisms to support the innovations; 6) the mechanisms of interaction of elements of innovation system, and 7) the socio-cultural foundations of innovative development of society and economy.

The principles of integrated and balanced development of all elements of the innovation system are especially important.

Deficiencies in the functioning of individual components lead to the low efficiency of the whole system.

Innovation oriented authorities at any level imply goals and tasks, management structures and their remit, industrial systems, relevant social, economic, cultural, humanitarian and other processes occurring in the territory, the available budget to solve problems, the presence of a system of priorities of the development in accordance with the innovation strategy. This is the theory.

In the structure of the Government of the Russian Federation as of 01.11.2013 [3] are represented the most important spheres of the current life the society and the state, but there is no division with a title and objectives oriented to a perspective, strategy, innovation development. And this is substantially not a form.

Governance structure on a federal subject level in some extent form repeats the federal structure and form and substance [4]. And it is logical from the standpoint of the power vertical.

As for the municipal authorities, the criteria for evaluating its activities must comply with the innovation strategy. Authority shall have the strategic objectives of innovation development and decompose these objectives to the level of adoption of specific business decisions based on appropriate credentials.

Basic processes of synthesis and implementation of innovations occur at the spatial level of local government. A list of issues that relate or should relate logically to local issues depends on many factors: the area of the municipality, population, industrial, scientific, technical, educational and cultural potential, geographic location, historical peculiarities of formation and many other specific factors.

A typical example of the municipality, on the territory of which is solved or can be solved the list of issues significantly higher than the list under Art.16 of the Federal Law № 131-FZ of 06.10.2003 is the city of Novosibirsk.

According to the Mayor [5] Law 131-FZ, although initially played a positive role in the development of local self-government in Russia, however, already during the commissioning become a brake on the development of high-tech industries in the territories. Because unjustified distinction of competences between state authorities and local governments of cities, municipalities, including the largest, essentially lost mechanisms to participate in the consideration and discussion of scientific, technological and industrial development of their cities. Violated were the natural laws of growth of the urban economy. Numerous recommendations in this regard have not been addressed, although other amendments to the law were made 84 times during 8 years. Today, accumulated a large number of contradictions of law 131-FZ to the norms of the Tax, Budget, Town Planning, Land, Housing Code and other federal laws. This law already poorly provides the legal basis for the normal functioning of local government. The local authorities now have no incentive for municipal development and expansion of their own income base, as almost all associated with these taxes go to the budgets of other levels. Unreasonably restricted the composition of municipal property and the possibility of its use to increase income of local budgets. Local self-government is largely lost its autonomy, primarily financial, and increasingly embedded in the vertical of the state power.

Successful transition to an innovative economy, referred to one of the highest priorities of public policy, cannot be implemented without large cities, where is actually accumulated human potential, scientific and technological reserve of the regions and the country, on the basis of which is formed the strategic direction of the economy.

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Innovative economic development is concentrated in the growing cities as a direct function of innovation policy in urban areas. It is a fact. Mechanisms of influence of the innovations on the development of the cities and the cities on the economic development of the countries were described by Jane Jacobs in her books "The Economy of Cities" [6] and "Cities and the Wealth of Nations" [7]. In the book "The Economy of Cities" Jacobs convincingly proved that the development and flourishing of the city's economy with market relations are driven by increasing of generation of innovative products and technologies aimed at import substitution and export, as well as the emergence of new activities in the division of labor. Human capital, a wide range of mastered technologies provides long-term opportunities for city's development. Innovative development is cyclical and goes proportionately with the cycles of renewal of fixed capital. In the second book Jane Jacobs showed that wealth of national economies concentrates in the largest cities that due to the concentration of production capital and developed systems of commodity turnover create a significant proportion of the gross domestic product of their countries. Essentially, according to Jacobs, the national economy is derived from urban economy.

As large cities are the basic elements of innovative growth of its regions and the country as a whole, they are objectively bear the main burden of making the transition from the export of raw materials to the innovative development of the economy, and they should be mandatory participants in the unified state system of innovation development. Moreover, their role and credentials must be determined accordingly to the small circle of key strategic objectives for innovative economic development in the state system of strategic planning. The list of such objectives on a long- and medium-term as the city's development institutions seen as follows [5]: first, the development of human potential of the city and its capitalization, second, the growth of scientific capacity and the generation of high-end technologies, third, active industrial policy on the basis of the dominant technologies promising technological system and, fourthly, to ensure the citizens of modern quality of life through innovative development of the urban environment and life-support systems.

Only in the realization of these objectives the dynamic development of the new economy is possible.

Today Novosibirsk has more than one and a half million population, by the area and the number of inhabitants it is the largest municipality in Russia. Within the city are concentrated the most powerful in Russian scientific and technical potential, cultural and educational centers, perform some basic reproductive processes of the development. However, due to the limited credentials, local authorities cannot participate actively in many processes, including innovation, for the benefit of social and economic development of the territory, for the benefit of the citizens.

In such circumstances, the municipal authorities should have mechanisms to adapt to the real conditions in the interests of the local community and the state. In the future, such adaptive changes should become the rule of law as a result of evidence of their viability.

Financial liabilities arising from the resolving of local issues performed at the expense of local budgets. Under the current order of the city's budget formation local government is experiencing and will experience constant lack of financial resources to address local issues even on the list approved by the federal law.

While in recent years has significantly changed the economic basis of local self-government in the direction of complications of the overall economic situation. In the period from 2007 to 2012 the property of the city of Novosibirsk, used to address local issues within the credentials has more than doubled. At the same time, the amount of property used to raise funds in the city budget fell whiter than 5 times. In 2007 the share of budget revenues from the use of the property of the city was 11.4 %, in 2012 – 5.9% in 2015 is projected at 2.1%. Growth in property used for the exercise of the credentials of local government, leads to an increase in the tax burden on the municipal budget. The yield from the use of the land in the city decreases.

The share of the city budget in the total financial resources of Novosibirsk is declining from 12% in 2007 to 5.6% in the forecast for 2015. The share of the development budget in executed budgets is also declining. This reduces the possibility of using the budget as a tool for development and management of the city life and, as a consequence, to reduction of the role of local government in the life of the city.

According to the Union of Russian Cities such trends are observed in most urban districts. Continuation of such trends has negative impact on socio-economic development of cities, including an innovative development.

Socio-cultural bases of innovative development have undergone major changes. Effective development of the national and the regional economy on an innovative way presupposes presence and development of the national innovation system, and essential elements of which are the socio-cultural foundations of innovation development of economy and society.

Under the socio-cultural foundations are understood the assumptions for the implementation of human activity from the perspective of the methodological approach, based on the system principles, the essence of which is to consider society as a unity of culture and sociality that formed and transformed by human activity. Education, training and tradition in this system occupy the key positions.

Currently, changes in the Russian socio-cultural system, in particular in education, have rather negative results. Deideologization and the absence of clear social development priorities, the loss of a number of traditions negatively affected the development of socio-cultural foundations of innovation processes. This explains not particularly high efficiency of economic and organizational measures taken in recent years towards the development of the innovation system and economic modernization. Understanding of the situation at the level of municipal and territorial authorities within the framework of their credentials allows to take an action to compensate for negative and to form positive trends in changing of the social and cultural foundations of economic development in the form of development and implementation of comprehensive and targeted programs aimed at the development of the individual elements of this framework, involving technical, research and economically activity subjects on the territory.

Structuring of the socio-cultural foundations of innovative development of the society reveals, from the author's perspective, the following basic elements: 1) education, focused on the formation of cognitive and transformative dominant among the students; 2) an innovative outlook among the younger generations; 3) the creativity of the working population; 4) passionarity; 5) patriotism; 6) ideological support; 7) social status and recognition of the results of such activity; 8) the tolerance of society and individuals to the mistakes and failures of others.

Of course, the socio-cultural foundations of innovation development should be a subject to a coherent state policy. However, in the framework of their credentials authorities and its executives at the level of the federal subject, municipality, federal agencies and economic operators are able to adjust and develop the individual elements of the socio-cultural foundations toward conformity with the decision of the problem – namely, the formation of the prerequisites and conditions for innovation development of the society and economy.

Example of an approach to the realization of these opportunities is the complex target program “Nurturing creative young people, the formation of social mobility and training for the innovation economy of the city of Novosibirsk” developed on the initiative of the mayor of the city of Novosibirsk.

The development was carried out by a group of independent experts, comprising the heads of organizations of fundamental and applied science, innovative businesses, educational institutions, innovative educators, officers of Novosibirsk Region and the City of Novosibirsk administration, members of the public, including members of the Novosibirsk Branch of the International Future Research Academy (IFRA). Science Team Leader – Deputy Chairman of the SB RAS on innovation and the development of scientific and educational complex Academician N. Dikanskiy.

A need to develop and implement such a program is dictated by several factors. Adoption by the state of the strategic installation at modernization of the economy and its transfer into the path of innovative technological development imposes special requirements on the choice of perspectives and resources of the city's development. For the development and commercialization of new technologies require highly qualified personnel.

Today, the training of such personnel is one of the major strategic problems and it is difficult to solve it without changing the existing socio-cultural foundations of society. Particularly acute the problem exists in relation to the engineering staff.

Demand for these personnel is already high and will grow more. According to the Ministry of Education and Science of the Russian Federation average deficit of highly qualified professionals in companies that implement innovative development program today is 35%. Larger numbers called by executives of innovative enterprises in Novosibirsk.

Preparation of highly qualified specialists, except of high-level faculty of existing scholars and professionals, availability of good conditions for learning and student participation in research activities, requires a number of applicants of appropriate quality.

In recent years, the quality of applicants for scientific and technical universities in Novosibirsk, as well as in cities in many regions of Russia, unfortunately, has deteriorated significantly. The root cause of this problem, in addition to intergenerational strains caused by the change of ideological doctrine, the state system and technological innovations, according to many experts, have become the education reform that actually neutralized the advantages of domestic secondary school, that was based on the formation and development of creative thinking of students using effective teaching methods and high quality verified textbooks, especially in mathematics and natural science disciplines cycle.

The CSE also affected the decline in human potential in many regions of Russia, including Novosibirsk region, as it significantly increased the centrifugal trends in mobility of creative young people. Received a good education in Novosibirsk in advanced gymnasiums, lyceums and schools talented graduates easily passed the CSE, often apply to universities in Moscow and St. Petersburg. A few returns. Since 2009, when the CSE for high school graduates was finally implemented everywhere, flows of the traditionally strong applicants to Novosibirsk universities from the territories of the Eastern Russia also significantly reduced.

To ensure a constant influx of young scientists and engineers to fundamental and applied science, engineering design of new cutting-edge techniques and technologies, as well as in the infrastructure of high-tech production and actual production of new high-tech products and services, urban community needs to compensate the costs of education reform. As means of such compensation may be a Novosibirsk-wide system of measures aimed at fostering creativity in children and young people, and the organization of the relay generations, forming social lifts for talented young people motivated to further sustainable innovative development of the city. At the same time, these measures should be designed and implemented within the framework of existing legislation, without violating of federal standards and laws on education.

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The system of measures may be declared in the form of complex target program for the deployment and coordination of efforts of the public and units of general and vocational education of the city, public authorities of the Novosibirsk region and local authorities of the city of Novosibirsk in achieving the main goal – building a system of training in cutting-edge areas of science, technology and innovation economy.

The program as an instrument of accumulation and reproduction of human capital increases the field of vision of the problem of personnel training for the innovation economy, encourages to influence the development of not only professional aspects, but also humanitarian. To prepare a good professional, one needs to help him develop appropriate personality traits. And to use these qualities for the benefit of society and the country it is needed to raise a sense of homeland and patriotism in the younger generations. The program should target the government and municipal authorities, parent and teacher communities of Novosibirsk to foster creative and educated younger generations, starting with the early childhood as the best return on efforts is possible to get in the preschool and early school stage of human ontogenesis. Awareness of the importance of the system approach to education and the development of creativity in children since birth is based on the results of numerous studies conducted in a number of countries [8]. In preschool childhood all the main parameters, characteristics of personality and human psyche are laid, the direction and quality of the further development of his or her intellectual, emotional and physical abilities, interests and capabilities are largely determined.

To continually succeed in cutting-edge areas of fundamental and applied science and the creation of new knowledge-intensive industries, is need to ensure a steady stream of well-educated creative professionals, patriotic to the city and well motivated for scientific and engineering career in it. The organization of this stream is possible in conditions of formation of an environment for staying in the city and the system of cultivation of very creative population from an early age of children and young people, learning to learn, brought up on the basis of basic national values and love to Novosibirsk, who are ready for self-determination and development of competencies for scientific and technical professions, capable creatively solve complex scientific, technical, manufacturing and managerial tasks. Representatives of such groups who enrolled in the universities of the city, after targeted training will be the main source of personnel for research and development in targeted clusters of projected Siberian center of science, education and high technology.

A structuring of problems of adjusting the socio-cultural foundations for the development of innovative economy within the competences of potential participants of Comprehensive target program, allows creating a tree of goals, objectives and activities constituting the skeleton of the program that can be used to build a system of measures aimed at achieving the targeted outcomes.

Implementation of measure system of the program allows to correct the socio-cultural foundations of innovation and expect the following results: the creation of centers of creative young people; creation of a pool of potential personnel for cutting-edge directions of science, technology and innovation economy of the city; mobilization of human capital for high-tech economic development of the city and region; the creation of social mobility for the new generations of Novosibirsk; the creation of innovation-oriented personnel reserve for Novosibirsk Mayor's Office and the Government of the Novosibirsk region; increasing the attractiveness of the investment climate in the city for domestic and foreign businesses.

Motivated high-tech industry. Industry in terms of economic development in general and innovation development in particular has always fulfilled a dual function, on the one hand, consumed the innovations, on the other, created a technological basis of the implementation of innovations in other industries. Over the past twenty years in the development of Russian industry major structural changes are witnessed (comparison of the RF is done with the RSFSR) (Table 1).

The output of 50 major industrial products of Russia in 44 cases did not reach the level of the RSFSR in 1990, in 25 of them it was less than 50%, only 6 types of products reached the level of output of the RSFSR in 1990.

Considering the sphere representing the innovative development of technology platforms, the situation there is even more complicated. In the catastrophic conditions is the electronics industry and the situation is not better in the pharmaceutical industry, which now provides only 15% of the need for medications.

Although in general, from a formal standpoint, [10] there is an economic growth – in 2011 the total value added in the Russian economy exceeded the level of 1990 on 12.2% (hereinafter, the data for 1990 is provided for the RSFSR). However, serious concern is the quality degradation of the structure of economic growth. Volumes of high-tech production are 3–5, and sometimes 20 times less than those 20 years ago, capacity utilization did not rise above 45–50%, depreciation of fixed assets is more than 55% according to official data of Rosstat (and 75–80% according to expert estimates), the volume of capital investments in fixed assets fell by 3–5 times, and the coefficient of renewal of fixed assets decreased by 2–2.5 times compared to 1990 levels.

Table 1

Industrial production in Russia in 2011 (compared with the RSFSR in 1990) [9]

Industrial Production	Industrial Production
Electricity – 97%	Cranes – 3,6%
Coal – 84,6%	Excavators – 6,5%
Oil – 98%	Tractors – 5,7%
Gas – 104,4%	Harvesters – 9,4%
Cotton fabrics – 21,8%	Machine-tools – 3,4%
Woollen fabrics – 3,0%	Refrigerators – 107,1%
Knitwear – 16,6%	Vacuum cleaners – 4,8%
Coats – 40,8%	Washing machines – 55,5%
Shoes – 27,7%	TV – 100%
Industrial wood – 32,9%	Trolleys – 10,2%
Fertilizers – 116,2%	Trucks – 28,2%
Brick – 39,1%	Cars – 154,1%
Cement – 66,8%	Buses – 67,7%.
Concrete Structures – 28,8%	Rolled metal – 92,9%
Steel – 75,6%	Turbines – 53,6%

At the same time the most difficult situation is in high-tech manufacturing industries, that are not embedded in the production and processing chains of large mining companies and infrastructure monopolies. In machine building, instrument, apparatus engineering, agricultural machinery, manufacturing computing, as well as the aviation and aerospace industry, production volumes are 10–20 times lower the 20-year-old levels, and investments decreased by 4–7 times.

Amid rising imports of high-tech products of foreign producers occurred 5–20 times comparable scale collapse of the domestic manufacture of high technology products. During the period 1990–2010 the annual production of trucks in Russia decreased by 2.7 times (up to 220 thousand units), large electric machines by 4.2 times (up to 4 thousand), track-type tractors by 20 times (from 121 to 6 thousand), bulldozers by 4.5 times (from 14.1 to 3.1 thousand), excavators by 4.3 times (from 23.1 to 5.5 thousand), cutting machines by 15, 4 times (from 74.1 to 4.8 thousand), forging presses by 21.5 times (from 27.3 to 1.26 thousand), forage harvesters by 12.2 times (from 10,1 thousand to 840 units), wheeled tractors by 9.2 times (from 92.6 to 10 thousand), machinery fertilizers by 47 times (from 21 129 to 450 units), bridge and truck cranes by 6,6 and 10 times, respectively.

In such circumstances, Russia's share in the global market of high technology products for the period 1990–2011 years reduced from 7.5 to 0.3%. According to the results of 2011 the share of machinery and equipment in total exports of goods was below 3.9% (compared to the economies of Egypt and Ethiopia, the similar rate exceeds 4.6 and 4.8%, respectively).

Such evaluation adheres Varnavskiy [11], suggesting that Russia is actually elected an innovative development model, the essence of which, on the country to the United States who “buys brains” ant to Western Europe, Japan and the Republic of Korea whose patents, is getting complete plants. This model is used by the rest of the world, including China, India, Russia, and Brazil. Despite a series of short-term advantages over models of higher-level innovation development, this model has a strategic character flaws, ant the most important of them is that the country that uses such model is doomed to constantly lagging in scientific and technological progress and innovation development, that are controlled from the outside if does not implement a national program of technological breakthrough.

It is known that the main consumers of innovations in the world are the engineering, pharmaceuticals, chemical industries. It should be borne in mind that the Russian scientific and technical developments in their bulk the West does not need and will not need in the future, except the unique cases. And the Western states are very tough in protection of the interests of its producers, especially in the area of innovation.

In the result, remains the last hope for the Russian innovation system – domestic engineering. The situation with the development of the Russian engineering was presented above.

If everything will happen as it was during the last 20 years, the problem of disrupted reproductive process will rise. The entire engineering sub-sector and types of production that are potentially the major consumers of innovations are already on the verge of extinction: precision mechanics and optics, electronic engineering, instrumentation, medical equipment manufacturing, robots, automated lines, machine tools, engines, etc.

Aggregate statistics of engineering growth in value does not reflect all the underlying processes occurring in the structure of the industry as both a sharp decline in the production of some types of products and significant increases in the output of other products. For example, microwave ovens, automatic washing machines, personal computers, color TVs, VCRs and other household appliances and electronics now produced more than in 1990, however, the growth of these industries takes place almost exclusively on the Western technology and technical basis. And the place of domestic innovative products, both now and in the future is also little visible.

In fact, over the last 25 years in Russia as a result of the reforms was developed a reproduction model of the economy in which the Russian innovations are not claimed.

Currently, Russia does not have a closed production cycle for a significant part of innovation-intensive goods. The resultant deficit is compensated by import from abroad, including financing from the budget in the form of public-private partnerships, and volume increases. There is a trend of as absolute increase in imports of machinery products, as increase in the share of these products in total imports, which is evident from the data presented below (Table 2).

Table 2

The share of machinery, equipment and vehicles in the commodity structure of Russian imports

Year	Share in total imports, %
2000	31,4
2003	37,4
2004	41,2
2005	44,0
2006	47,7

Source: Federal State Statistics Service of the Russian Federation.

Current degree of integration of Russia into the world economy in terms of engineering – is unacceptable for a country aspiring to create its own national innovation system. If the economic policies will not be radically changed, further inequalities will only grow resulting from the disposal from the reproduction process of the engineering industry.

Infrastructure of innovation activities. In a centrally planned economy, innovation infrastructure responsible for promoting innovation from scientific results to technologies and production was a complex of sectoral research institutes, EDO, pilot production plants, reproduction system for personnel, overall about 6,000 organizations. Since the beginning of reforms implementation no measures have been taken to reorganize them into the market elements of innovation infrastructure as it was in the United States after the World War II. In general, this situation has been left out of account at the federal and regional levels.

This is evidenced by the adopted Federal Law “On Science and Science and Technology Policy” and the Novosibirsk Regional Council Decree “On the application of the Federal Law of 29.12.95, № 222-FZ “On the simplified system of taxation, accounting and reporting for small businesses” in the Novosibirsk region in 1996”.

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In the Federal Law on Science and the Science and Technology Policy was not even denoted the development of innovative business and its infrastructure, and in the Regional Council resolution the size of patent annual value for small business that entities (legal entities) activities in science and technology sphere was the highest (from 2 to 22 times higher than patents in other activities) in the Novosibirsk region, and in the city of Novosibirsk it was second only to trade.

As a result, from 1990 to the present, the country ceased to exist around 4500 applied (industrial) research institutes. Of the remaining, with rare exceptions, the majority did not managed to successfully fit into the innovation system. The concept of “industrial science” actually died except for energy and partially metallurgical and transport sectors. University-based industrial parks create in droves in the nineties were “paper”, their actual capabilities were scanty and in fact reflected the activity of scientific research sectors that functioned previously. Technopark structures and mechanisms to support innovations, including the “Skolkovo” and “Rusnano” that emerged from the middle of the first decade of the twenty first century are still scarce, weak and did not compensate for the destroyed system.

The Russian Academy of Sciences (RAS) is a unique organization in size, structure and scientific basis. Once the most important part of the innovation system of the country that preserved and increased the material and technical base that has taken on a number of

unusual features of the innovation infrastructure, today is in phase of reform with unclear goals for the society.

Territorial aspect of creating a national innovation system in the city of Novosibirsk. Today national innovation systems (NIS) do not appear anywhere in the world by themselves – they are the result of deliberate government policy, and the role of local authorities and the scientific community is very high.

Modern views on the NIS are very diverse. Analysis of existing approaches and our own research suggest that the effective development of the economy of the country, the region and the individual municipalities on an innovative way depends on the optimal combination of all elements of the national innovation system in the territory, as a developing area of scientific and technological development. In modern practice, such territories are called technopolis, which are understood as the territory of scientific and technological development, (1) combines residential, recreational and industrial areas, (2) organized on the basis of geographically separate multi-functional complex scientific center (a major university, scientific center of RAS, etc.), (3) has an extensive social and domestic, industrial and technopolis infrastructure, (4) having an organized system of state and municipal government, (5) focuses on the development of scientific, educational, scientific-technological and innovation system through the budgetary support and benefits for the development of innovation and high-tech industry.

The principles of integrated and balanced development of all the elements of the innovation system are especially important. Herewith, an innovative system must have an optimal position with existing, emerging and newly created elements, spatial organization and optimal separation of powers for the development and organization of the individual elements of the innovation system between the levels of government. An example of the organization of the NIS in a certain area in Russian is the city of Novosibirsk.

To address the state's defenses and solve complex issues of economic development of the eastern regions of the country, scientific and technical problems of development of new industries, space exploration, microelectronics, microbiology, medicine, agriculture in Novosibirsk by the end of the 80s was formed a powerful scientific-industrial complex presented by the branch of the USSR Academy of Science, Academy of Agricultural Science, Academy of Medical Science, a large group of industrial research and design and high-tech industry enterprises for microelectronics, precision mechanics, optics, radio, microbiology and other industries.

In the context of existing socio-political paradigm the state attempted to apply previous methods of “embroidery” of bottlenecks in the development of scientific and innovative activity. A centralized system of departmental “implementation” of the results of basic research in the national economy was created.

Thus, in 1960–1970's around Akademgorodok a “zone of implementation” consisting of R&D bureaus and industrial research institutes focused on the promotion of the R&D results of the Siberian Branch of the USSR Academy of Science in the form of high technologies in industry and agriculture was created. As a result a number of large sectoral scientific-production associations and research institutes were established there:

- Scientific-Production Association “Vector”;
- Scientific-Production Association “Sistema”;
- Institute of Applied Physics;
- Special Design and Technological Bureau and pilot production of catalysts;
- Institute “Gidrotsvetmet”;
- Branch of the Institute of Precision Mechanics and Computer Engineering;
- Branch of All-Union Scientific Research and Design Institute of Chemical Engineering.

In Novosibirsk and Novosibirsk region was actively developing production in radio, precision mechanics, optics, microelectronics, microbiology, and other branches at the peak of scientific and technical progress.

These organizations had a significant production and personnel potential and due to its geographical proximity had close contacts with the institutes of Siberian Branch of the Russian Academy of Science and used its R&D results on a contract basis, which was a positive factor.

Reorganization of these structures under the terms of a new development paradigm of innovation could give good results. And this opportunity is not missed. A holistic view on the models of the NIS of the city of Novosibirsk is needed and consistent implementation of it into practice. Development of the NIS in Novosibirsk today has a patchy, sporadic, spontaneous nature and requires management consolidation. Today Novosibirsk has such consolidation opportunities and should use them. Within its mandate, the city of Novosibirsk developed and implemented in 2005 a comprehensive target program "Territory scientific and technological development – Technopolis "Novosibirsk"".

Conclusions. Experience in the development of the innovation system in Novosibirsk last 20–25 years, unfortunately, showed the presence of a large time lag between taking the initiative on the ground and start of its implementation. The scientific community and local authorities in modern conditions always have sponsored development of certain institutions of the national innovation system and its complex in general.

Today, the successful establishment and development of the national innovation system requires, first, modernization of its manufacturing industry, secondly, a more rapid development of infrastructure for innovation and scientific support, thirdly, remodernization of pre-school, school and vocational education, fourthly, expansion of credentials of local authorities in the implementation of economic and innovation policy.

Paradoxically may sound, but for the successful development of the innovation system for the new cycle in Russia today necessary to go all the way, the same traveled by the USSR in 1950–1970's in the era of large national programs to create new industries and the upgrading of existing areas, but on the basis of new economic relations. Concept of the development and the objective prerequisites exist.

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THE ROLE OF LOCAL GOVERNMENT IN THE FORMATION OF FAVOURABLE CONDITIONS FOR REGIONAL DEVELOPMENT

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This article deals with the problems concerning the development of the local government. These problems are primarily due to the significant differentiation of spatial socioeconomic development and the peculiarities of the legal framework regulating the local government development. Substantiated are some recommendations to improve fiscal relations and the necessity to establish local regional clusters for municipal entities management. The establishment and development of regional clusters are expected to ensure the rational spatial specialization and the use of competitive advantages of the territories.

Russia's peculiarities require the national government to be more proactive in matters of territorial development of the country and in the solution of problems associated with unjustified regional disparities. In a situation of more stable political and economic growth, as well as with a larger role of strategic priorities, the role of regional governance in the economic and social spheres will be more recognized.

The Russian experience in market reformation shows that the regional level of administration is not quite prepared to a transition to new relations; it is, on the one hand, due to disparities between the existing juridical framework and the financial-economic situation of regions and, on the other hand, to the uncertainty surrounding their place in the established system of governance. It is also the absence of an unbiased information-forecast framework, objectively representing the interests and functions of the regional link of the administration system, as well as a lack of coordination between forms and methods of interaction among different structures of the territorial system. In order to improve socioeconomic interactions, it is necessary to create a methodology for regional administration which would adequately represent the new socioeconomic and financial environment and the interrelations among its elements.

Issues related to the improvement of regional management have lately been in the middle of attention in Russia. This is seen in all critical areas of social activity. In the system of legislative bodies, the number of adopted normative and other procedural decrees concerning the structures and mechanisms of decision making in processes of regional socioeconomic growth has increased. In the area of executive power, there is a constant reformation of decision making structures both in the area of personnel and functions up to the absolute liquidation of some power institutions and creation of others, i.e., principally new ones. Public organizations criticize (according to the topics most often discussed in mass media) the existing situation and openly debate with the authorities.

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Business structures do not accept the current system of taxation, licensing, regulatory mechanism of tariffs on services of natural monopolies, customs policy, and other methods of government participation in economic management. All this leads to the ignorance of the government's management policies in the form of direct refusal to follow them (shadow economy) or following them partly (tax evasion, undeclared income, etc.).

In the academic and expert community, interest is growing in the investigation of the theory and practice of the decision making process at the level of federal subjects (regions) and municipalities to search for ways to increase the efficiency and validity of the federal and municipal government [1–4].

The creation of a new system of governance of the regional economy should be based on understanding, first, that the regional economic system has a complex structure; second, that the governance of the composite parts of this system needs specific mechanisms; and, third, that such mechanisms should be mutually compatible. Governance at the regional level should be based on a certain system of methodological principles, representing the objective features of the regional sustainability process:

- The earmarked governance. The objective of governance follows from the interests of a particular governance object. If the object is a region, its interests are determined by the interests of its residents (material standing, culture, education, creative activities, physical state of health, and high quality of life);
- The use of regional advantages in the territorial division of labor. The system of regional governance should provide the effective use of natural–climatic and socioeconomic advantages of a region in the territorial division of labor and at the same time contribute to the comprehensive growth in the regional economy. This principle represents a dual function of the regional economy: on the one hand, it presents an integral composite of the uniform socioeconomic system of the federal state, has its own specialization, and participates in the development of integration links; on the other hand, it is a relatively independent sustainability system, and the level of its interdependence is substantial for the efficiency of its growth;
- The combination of interests of all economic agents participating in the process of regional sustainability. This principle reflects the presence of own interests by each economic agent and presupposes the existence of objective discrepancies among them. The main requirement for the mechanism of social sustainability governance is the creation of conditions for activity, under which a certain balance among the interests of all structures interacting in this process is achieved;
- The economic self-reliance, which is not simply treated as absence of direct intervention of the federal state in a region's affairs, but in a more general sense. The principle of economic independence should imply the equal status of different forms of ownership and economic independence of all proprietors. In addition, economic independence presupposes a clear cut distribution of powers and functions of governance between different levels of power and the creation of financial and economic conditions for their implementation;
- Self-financing. A region's growth should take place in a direction providing for the possibility of covering the expenditure obligations at the expense of income, formed in the territory itself. This is far from total financial self-reliance of regions, but it implies such a scheme of financial flows, in which redistribution processes are not dominating;
- The correlation between the efficiency of regional economic growth and the formation of the resource base of the social and general economic development of a region. According to this principle, the economic interests stimulating economic growth and its efficiency should be taken into consideration;

- The responsibility for those governance functions that present the essence and content of the governance system at the level of a region of a given rank.

The implementation of the entire system of principles will allow for the creation of premises for the formation of a reliably acting and stable system of governance, providing efficient regional growth consistent with the achievement of objectives and planned measures. All these principles should be laid in the basis of juridical and normative-legal acts creating the framework of the governance system of the regional economy and determining the choice of those concrete instruments of the governance mechanism, which determine its efficiency.

In order to ensure the effective development of the regional economy and liquidation of socioeconomic disparities, it is important to detect in advance the situation arising from the confrontation of different interests in order to prevent conflicts and their negative consequences. This is also important for the development of a policy of efficient interaction between regional governing bodies and business in dealing with common problems and for the integration of efforts in order to practically implement the socioeconomic programs of a region. The plurality of interacting economic interests that should be taken into account in the formation of governance mechanisms at the regional level can be reduced to two groups: a) the interests of business structures concerning the development and functioning objective of the regional economy; b) regional interests related to the provision of balanced comprehensive development of the economy and social area and the active participation of a region in interregional interactions, increasing the efficiency of the use of its resource potential.

The economic interests associated with the activity of business structures are regulated by the existing legislation, so the interaction in this field is guaranteed by the system of legal instruments. A different situation arises regarding socioeconomic objectives of a general regional character. This field has no clear-cut norms and rules regulating agents' interactions that would be mandatory to all involved organizations. So, in terms of regional governance, it is necessary to consider the interaction between economic interests and those arising in this situation, at the basis of which qualitatively new integrated interests are.

For the effective governance of a region's socioeconomic development, the following conditions are necessary. Regional administrations (government), not interfering in the activity of economically independent firms, should play an integrating role in the formation of the socioeconomic environment of a region, i.e., to control those processes, in which both business and a region's people take interest and which companies cannot perform separately. Then, the formation of a socioeconomic environment in a region is considered as a process of local sustainability cycles, and the financial-economic base of a region is created on the basis of equivalent production-economic ties between business and the region, which presupposes the direct dependency of economic opportunities of regional governance bodies on the efficiency of the activity of enterprises situated in the territory.

Administrative-business relations are to be viewed in terms of their influence on a region's standing (economic, social, technological, ecological, etc.). In the estimation of regional taxation for business, of importance are aspects, such as the effect made on profit, investments, technology, whereas for regional administration those are opportunities for financial policy, for a choice of instruments for motivating new directions of the region's economic growth, and a rise in its competitive advantages. The interaction between business and a regional administration can also be based on principles of private-public partnership, and regional taxes should perform the role of an effective instrument for the maintenance of mutually beneficial relations [5].

The Institute of local government plays an important role in the development of civil society since all civil rights and active manifestation of public initiatives are born and ultimately implemented in local communities. Local government has its own managerial

apparatus acting on the basis of laws and regulations and it may form the budget and establish and collect taxes.

Key activities of the developed local government are as follows:

- to stimulate the growth of budget revenue and rational use of the expenditure part of local budgets;
- to provide minimum living standards of the population;
- to improve the quality of the living environment of the local population;
- to contribute to the strengthening of the Institute of local self-government by the effective exercise of its powers.

Despite the fact that in accordance with the legislation local self-government has a financial autonomy and its own managerial apparatus, in practice, it is so tightly intertwined with the state structures that it actually performs the functions of a representative of the state authorities at the local level. This situation is due to both subjective and objective reasons. As to subjective reasons, they, as it has already been mentioned, are determined by the nature of power and its pursuit of accretion. As far as the objective reasons is concerned, the main one is that at the present stage for the vast majority of the municipalities there are no conditions for the formation of self-sufficient local budget, which is a consequence of an unacceptably great spatial differentiation in the level of socio-economic development of the country. This differentiation is manifested, first of all, at the level of subjects of Federation.

Analyzed was differentiation index of some of the main macroeconomic indicators for the subjects of Federation in 2010 (according to official statistics). Index is calculated based on average per capita indicators for 2010. Only the index of investment differences was calculated on the basis of the average per capita indicator of investment costs for a period of ten years (2001–2010). Two subjects of Federation from each Federal District that differ in their financial and economic potential were considered. Population trend of subjects of Russian Federation may serve as the integral indicator of this differentiation: in the relatively prosperous Russian Federation subjects population increases or, at least, population size does not change. The more under-developed the region is, the greater is the decrease of population. The Republic of Dagestan is characterized by demographic processes quite different from all-Russian ones. The analysis of data shows, first of all, that there is no effective regional policy in the country, and if the existing tendency persists, it will have a negative impact on the overall economic development of the country and its position in the world economy.

But the real differentiation in the quality of living of people is still higher as each subject of the Russian Federation is characterized by heterogeneity of spatial socio-economic development. For example, in Novosibirsk oblast, population, industrial potential and infrastructure are concentrated in Novosibirsk and Novosibirsk agglomeration, while the rest of the municipal entities are characterized by underdeveloped transport service, backwardness of social services, low density and low incomes of population.

If we consider only rural municipal entities, we'll see that the maximum average monthly earning (in Iskitim district) is 1.6 times higher than the minimum one (in Ust-Tarsk district). The average monthly earning in Ust-Tarsk district is as much as 0.52 that of the Novosibirsk oblast. The lowest average monthly earning (in Kuibyshev district) is 3.3 times less than that of Novosibirsk rural district. Among rural districts (with the exception of the Northern district where oil is produced) the maximum average per capita investment in two years is in Maslyanino district, which is 11.6 times as much as the minimum one (in Kuibyshev district). The analysis of level of investment costs in rural municipal entities primarily suggests that the tendency toward differentiation in the development of the municipalities will persist in the years to come.

The integral indicator of the level of socio-economic development of territories confirms socio-economic strength – population dynamics relationship: in comparison with 2000, in 2010, population increased only in cities, in all rural areas population decreased, and in two municipal districts with the lowest level of socio-economic development the population decreased almost by a quarter.

Spatial heterogeneity of socio-economic development of the country in general and of each subject of Federation as well enables us to talk about the great originality of the Russian federalism. Not by chance there appeared such a concept as a “unitary federalism” [6]. Translated, this means, that the Russian state is federal in form and unitary in content.

The Constitution adopted in 1993 simply obliged to create a legal framework for the establishment of local government. In 1995, adopted was a law “About general principles of local self-government organization”. However, the lack of real community participation practice in solving issues of local importance affected the quality of the law itself. It lacked certainty in such fundamental issues as the territorial boundaries of local government, financial independence and cooperation with regional authorities.

In 2003 a new law on local self-government was adopted, nevertheless, problems concerning local self-government still remain unsolved due to the fact that there are no objective preconditions for the proper functioning of the overwhelming part of the Russian municipal entities under the terms of local self-government. Probably, local self-government system should be established step-by-step, its development should take more time, with regional specifics being taken into account. In this case would be appropriate to use different types of fiscal relations for the territories with the status of a municipal entity and territorial-administrative units, which, with strengthening of economic and fiscal potential could also obtain the status of municipal entities and, accordingly, more autonomy in solving problems concerning the development of their territory.

The main financial source providing the fulfillment of expenditure commitments and implementation of control functions by the state, a city, a town, or a village, is its budget. Needless to say, that budgeting is very time consuming, complicated and contradictory. The trouble is that the ideal model of the fiscal system formation does not exist, and each country finds its own approach, which corresponds to its peculiarities, state structure, as well, as to its economic, financial and social relations.

Russia is still in search of its model of fiscal system formation and this is not surprising, because issues concerning the economy model still raise heated debate. Labeling the state as an ineffective owner, in no time private business laid its hands on the resources that are competitive in the world market and calmed down on this. The results are easy to guess: the state that has been expelled with shame from economy, the economy in which mainly the primary industry is being developed, and the budget, which, naturally, depends on the price of oil in the world market. For such a large modern state this situation is abnormal, so the task of structural reconstruction of the economy and the creation of modern high-tech sectors are a priority. All this requires technological modernization and the development of modern native engineering. Unfortunately, there are no creditworthy entities that are interested in such modernization. Interest of the state is explained by the instinct of self-preservation, because only the transition to innovative development will ensure its national independence and economic competitiveness. But most of financial resources are concentrated in the hands of raw companies that do not need this modernization with all its risks. Prospects for technical retooling of the economy are complicated by the low investment grade of the state. The governmental authorities express deep concern as to the low investment grade of the state and to the outflow of its capital abroad. According to expert estimates, in the first quarter of 2012 capital outflow amounted to \$42 billion. Of great interest is what the share of the state and state-owned corporations is in this amount.

As far as the formation of fiscal system of the state is concerned, broadly speaking, there are two main approaches based on two different principles – principal of centralization and that of decentralization. Centralized system implies the concentration of all the taxes and levies at the upper level of the state budget system and its subsequent distribution between regions in accordance with certain rules, with political factors being taken into account. A decentralized system assumes that assigned to each level of the budgetary system – federal, regional and municipal – is its own system of taxes and levies.

In the modern world no developed state uses only one approach in its pure form – a completely centralized or a fully decentralized system of the state budgeting. Generally, a mixed system combining both principles in various proportions is used. For instance, the U.S. budget system is largely decentralized. In the U.S.A the main municipal tax is an individual property tax, which is over 20% of the local budgets (over 50% in Canada). Municipalities closely follow issues concerning the collection of individual property tax and are greatly interested in its increase. It should be pointed out that the American model does not exclude some redistribution of the federal budget funds between the states and their municipalities. This redistribution is carried out mainly in the form of grants for implementation of municipality social projects.

In Russia primarily decentralized approach is absolutely unacceptable due to the following reasons. Firstly, due to excessive differentiation of the regions in terms of socio-economic development and the concentration of wealth in few well-known places the use of such a model will only lead to the further deepening of the gap between the regions and to the impoverishment of the majority of the municipal entities of Russia. Secondly, in Russia the land tax and individual property tax do not fulfill the role they do in Western countries. This is because there are often no properly registered real estate units for taxation and the unwillingness of citizens themselves to put their own property rights in order, since it requires time and money, which may exceed the costs of the property.

Use of mainly centralized approach actually contradicts the principles of a democratic state, the main feature of which is the active participation of citizens in the management of socio-economic development, and especially in solving matters of local importance. Nevertheless, it is this approach that is used as the difference of potentials and infrastructure gap of the regions of Russia objectively require significant reallocation of funds from economically developed regions to the backward ones. Paradoxes of Russian federalism may lead to a situation where the region that firmly stands on its feet in one second may turn into a backward one, although nothing changes in its economy. This happened to the Omsk region, where the head office of “Sibneft” was registered. Then it was reregistered in St. Petersburg, and the budget of Omsk region lost almost 40% of its income, at the same time the budget of Saint-Petersburg – acquired it. In 2011, the head of the company “Wimm-bill-Dann” changed his residence permit in Moscow to that in the Republic of Kalmykia and paid 2.3 billion rubles to the Republican budget, which was nearly as much as a half of that. You may only be happy for Kalmykia, which does need funds for the development of its economy and infrastructure. However, it is abnormal, because the fiscal system of a big developed state should not depend on someone's formal registration.

Still more clearly paradoxes of the Russian fiscal system are manifested in Moscow where head offices of most of the major corporations of the country are registered, and the budget amounts of which are much bigger than those of the other subjects of Federation, that the city authorities have the ability to pay extra to pensioners, teachers, and above all – to the judges. It may be that some other centers of the subjects of Federation would have such an opportunity, but they, unlike Moscow and St. Petersburg (the economy of which is not burdened by agriculture), have serious obligations to their rural areas, which are also inhabited by people, and these people are feeding the country and ensure its food security.

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The current practice of local budget formation is not to bring into balance income and expenditures but to reduce the amount of expenditures up to the level of income, so the budgeting is limited to the disposition of funds for the most emergence needs. Bodies of local self-government have to carry out a selective expenditure financing policy. Under these circumstances, lost is the very opportunity of carrying out a responsible fiscal policy, improving the quality of services, effective cost controlling and attracting investment for the development of municipalities. No wonder, that when it comes to the local self-government, as a rule, they say about the powers of local authorities and almost never about the liability of this government to its population. But under circumstances, where almost all municipal units are subsidized, local authorities are primarily dependent on the superior authorities, rather than on local communities. Fiscal system in its current state is, no doubt, in need of serious changes, and those changes should be result-oriented and capable to solve the following tasks.

Firstly, it is necessary to reduce counter flows of funds. Norms of federal tax deductions into the local budget are established in such a way so as to exclude the withdrawal of excessive taxes as if such a situation emerges it will generate counter flows.

Secondly, fiscal policy should be capable of forming an autarkic budget at the expense of its own sources of income in cases when taxable capacity of a territory is rather high. If this takes place, then the conditions for real liabilities of local government authorities to the population will be created.

Thirdly, fiscal sharing should stimulate local self-government interest in the developing income basis and permit it to encourage its growth.

The state is actually interested in the development of fiscal processes, since the possibility of the local government to display initiative and its independence are the additional resource of the management system to improve its effectiveness.

The analysis of present-day financial and economic relations has no sense at all since the Russian statistics considers some kind of virtual economic functions. For example, 40.4% of income tax from consolidated returns to the federal subject budgets is formed in the Central Federal District, with Moscow share being equal to 29% and the total share of Yamal-Nenets and Khanty-Mansiysk Autonomous Districts being only 5.8%. Proceeding from the obvious disadvantages of modern fiscal practices, as well as from the common sense, it would be, apparently, appropriate to entirely assign income tax to the federal level. In this case, "restless urge for change of place" of large corporations would not influence the stability of regional budgets and greater justice of financial and economic relations would be ensured. Probably, at last, the government will pay back the profits from offshore accounts, all the more so as at the present day there is no economic justice to keep them.

At the same time, it would be justified to transfer individual income tax predominately to the budget of the territory where a person lives. The point is that currently there is a considerable labor migration, especially between the major centers of subjects of Federation and the surrounding small towns and rural areas. In this case, the return of individual income tax to the budget of the territory where the enterprise is registered does not reflect the relationship between the labor quality and that of living environment of employees. A worker and his family enjoy all the services financed from the local budget (housing and public services, system of education, health, transport) without participating in creating a financial base for their maintenance and development.

For a long time vain discussions concerning more objective assessment of such taxes as taxes on land, property and luxury have been conducted. Those who are interested in preserving the existing status quo, it is they who make decisions, convince the public that the revision of taxes won't yield any tangible results and give almost nothing to the budget. Naturally, the question arises, why these taxes that are competently used in other developed countries will give nothing to the budget of the Moscow region where the real estate is much more expensive than in the USA.

At the same time, it is obvious that to improve the efficiency of socio-economic development of the country, regions and municipalities, it is necessary to improve the entire management system, not only the part that relates to fiscal relations. The main resource determining the socio-economic well-being of the state and its regions is an effective management system and the Russian management system has great untapped reserves.

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FINANCIAL RESOURCES OF LOCAL GOVERNMENTS

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Russian legal environment concerning regulation of municipal units impedes cities and municipal districts in elaboration and implementation of their own development strategies. The correspondence between fiscal spending and their financial resources made by regional and municipal governments limits most municipalities in their independent fiscal policies both at present and in future.

INTRODUCTION

At present, there is a rare consensus of opinion among politics, scientists, and the public that high regional disparities in incomes and quality of life are undesirable and even harmful to the future development of the countries. A degree of heterogeneity of any national economic space could be regarded as an indicator of how effective government regional policy, even country development in whole, is. The highest spatial differentiation of economic indicators, conditions and standards of life can be observed in the developing countries of the world, especially in the poorest ones.

Spatial heterogeneity of the economy could not be considered as an inevitable consequence of its development. The causes of such a consequence, if they exist, are well known. They are geographic and climate factors, availability of natural resources, sectoral shifts, concentration and scale advantages, historical legacy, ethnic specifics of the local native population, and many others.

Any government, within its powers, makes efforts to smooth regional disparities according to its political, social, and economic considerations. Usually, measures of fiscal policy are effective in equalizing the provision of major social services like education and healthcare, maintenance of public order, support to disabled persons, and etc. To stimulate the development of depressed territories, other instruments such as those of regional policy like special funds, programs, and development institutions are required and applied. [1].

Most of the Russian studies on spatial disparities are devoted to measurement and analysis of the regional disparities within a certain federal district or unit of the Russian Federation. Like in many other countries, the highest disparities in levels and rates of the socio-economic development can be observed between Russian municipal units. However, Russian economic space at the municipal level is so contrast and obvious that N. Zubarevich could specify four major systems of cities and their development models showing a striking difference [2].

The Russian studies on municipal problems usually deal with the issues observed within a certain subject of the Russian Federation and they analyze the issues of infrastructure, transportation accessibility, availability of basic public services to cities and areas, local budgets and their dynamics, and intergovernmental transfers. There are also certain achievements obtained by Russian sociologists with regard to assessing the degree

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and causes of territorial differentiation at the municipal level. The studies made by S. Artobolevsky, N. Zubarevich, T. Nefedova, L. Smirnyagin, A. Treivish, and others, among economists – E. Kolomak, V. Leksin, A. Marshalova, A. Novoselov, S. Suspitsin, A. Shvetsov, and some others are worthy of being noted.

REGULATORY ENVIRONMENT OF LOCAL SELF-GOVERNANCE

To solve the problems of municipal units and build more homogeneous economic space, the Russian constitutional and regulatory environment is necessary to be stable and its regional policy – consistent and supported with enough financial resources.

Russia has ratified the European Charter of Local Self-Government and thereby acknowledged its supremacy over national laws without reservation. The Charter directly writes that local self-governance is local authorities' right and real opportunity to regulate a great part of public affairs on their own responsibility and for benefit of the local population within the limits of the law. This implies that local people have an unconditional right to solve socio-economic problems of their communities independently and responsibly.

The federal acts on local self-governance were adopted by Russia in 1991, 1995, and 2003. The last one (Federal Act No. 131-Φ3 of 2003) came into force in 2009, but till nowadays it has been annually amended, sometimes very seriously. Local self-governance and its amendment in Russia are also governed by other federal acts such as the RF Tax Code, RF Budget Code, Federal Act No. 126-Φ3 on Financial Basis of Local Self-Governance in the Russian Federation, Federal Act No. 184-Φ3 on General Principles of the Legislative (Representative) and Executive Bodies in the Units of the Russian Federation, and many others. In addition to federal acts, each of the RF units also has its own legal environment, rather voluminous and constantly amended, as well a huge number of subordinate acts and regulations such as official letters, instructions, and methodical recommendations passed by different executive agencies. Despite such numerous amendments annually made, perhaps due to them, the legal basis for local self-governance has remained contradictory. Such unstable legislation has a negative impact on local authorities' ability to formulate and pursue long-term development policies for territories under their jurisdiction. Especially, this concerns small and medium cities and rural communities.

The last Federal Act enlarged the number of municipal units in Russia, but only formally [3]. Since only municipal areas (raions) and city districts among other municipal units have the right to set their local budget, own municipal property, and elect self-governance bodies, the above Act quite the contrary decreased the number of municipal units.

Under this Act, the following actions are classified as those under jurisdiction of local governments:

- to set, adopt, and implement the budget;
- fix, change, and abolish local taxes and duties;
- possess, enjoy, and dispose of the municipal property;
- provide the local population with energy, heating, water and fuel supply;
- maintain and build local roads, bridges, and other engineering constructions for transportation;
- provide public transport services;
- prevent and ensure emergency relief operation;
- provide primary measures of fire security and protect public order; and
- create conditions for local communities to be provided with communications, trade, public catering and community services.

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In addition to them, the federal center has delegated to the municipal level a large portion of its functions concerning the provision of housing and benefits to certain categories of the local population and execution of federal decisions on providing certain kinds of education and healthcare. One would suppose that such volume of delegated powers should be supported by appropriate allocation of financial resources to the municipal level. Rather, an inverse process has taken place in fact – today, the most part of the Russian consolidated budget goes to the federal budget and extra-budgetary funds, and therefore, regional and local authorities have less money even together with intergovernmental transfers. The sources of local revenues are strictly regulated by the federal acts and their number drastically reduced. The expenditures of consolidated budgets of the RF units reduced from 50% in the early 2000-s to 35% in 2013.

These changes could be explained partly by a fast economic growth in Russia due to a favorable external economic situation, recovery growth after the crises of the 1990-s and of 1998, and the institutional reforms taken place in the beginning of the century. The conflicting goals set by the federal center also played a significant role – on the one hand, the Government has relieved of those social obligations and infrastructure expenditures which were difficult to fulfill and meet, and delegated them to authorities of the RF units and municipalities. On the other hand, realized its purpose to put under control more and more authorities in order to have a stronger ‘vertical of power’ by inclusion of the municipal level. It should be said that regional authorities has done the same in many aspects towards municipalities.

This resulted in fact that local authorities in most part of the country operate on a pro forma basis as those which carry out the government responsibilities delegated to the municipal level and financed by upper levels as transit through transfers to local budgets. The governments of all levels are well aware of this problem but the decisions to address it are of quite unforeseen character. For example, recently the federal center made a decision on funding pre-school educational institutions from budgets of the RF units while previously, a part of expenditures for education and healthcare were funded directly from local budgets.

The strategic documents adopted by the Russian Government describe the qualitative diagnostics of regional development problems and measures required to overcome disproportions. For example, the RF Long-Term Economic Development Concept [4], Part 7 “Regional Development” includes a list of measures required to build a sustainable regional settlement system. The following measures are suggested:

- to delegate more financial resources and powers to municipalities and, first of all, to their points of growth;
- enlarge the sphere of economic and financial activity where municipal authorities may operate independently;
- make the effectiveness of municipal economies higher;
- elaborate city development plans which are effective and harmonized with the environmental development, and make urban architecture and supply facilities more diverse and comfortable;
- make mono-cities more stable; enlarge their functions; assist to greater quality and mobility of the population; solve the problems of mono-cities and communities with an exhausted resource base; and build mechanisms to allow the resettlement of such mono-cities and communities; and
- form a new and modern image of Russian rural community.

However, having declared these sound objectives, no real actions followed them because the Concept was vague about methods, instruments, and resources for how to realize them.

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The recent practice of elaborating strategies, programs, or medium-term plans in Russia has had a little impact on the practice of the decision-making and its mechanisms and it brought no stability to the economic development yet, especially at the municipal level. To have long- and medium-term plans is a sound measure, but our plans and budgets – even those for the current year – are seriously corrected in the course of their implementation. This affects our long-term forecasts and confidence in the information and methodological support for decision-making.

**ECONOMIC GROWTH,
FISCAL POLICY,
AND FINANCIAL RESOURCES
OF LOCAL SELF-GOVERNANCE**

A significant drop of the Russian economic growth in 2013 was an unpleasant surprise to the RF Government, but not to independent analysts. Today, it is a generally recognized fact, and we witness a rather radical revision of not only our fiscal policy for next three years, but also of the long-term strategic documents. If such revision of other strategic documents has not happen yet, it will in the future. Along with a repeated correction of parameters of the forecast for 2013 during this year, the RF Ministry of Economic Development revised several times the long-term development forecast for Russia. Within previous six months, the expected annual GNP growth was corrected from 3.2 to 2.5% according to a conservative plan which is supposed to be the most liable and could be considered as a basis for our fiscal policy.

However, to have such a rate of growth will be difficult as the Russian economy in whole has lost its competitiveness and investment attractiveness to other countries.

The above conclusions were prompted by the following words from the Official Notes [5, p. 2] – to achieve this growth rate, it is necessary “to continue aggressive institutional transformations aimed at improving business climate and competitiveness, and making the quality and effectiveness of public and corporate management higher in Russia”.

At present, the macro-economic situation in Russia could be regarded stable and its budget system – rather well-balanced in the short run. However, the last report made by Gaydar Institute and the Academy of National Economy writes that a significant fiscal gap is highly expectable in the long run [6]. The trends towards a higher sovereign debt are also unfavorable since it grows much faster than the economy – only over 2013, it grew from 10 to 12% of GNP. Moreover, the external debt of Russian corporations and banks (especially, public ones and those with government participation) is high enough and close to 50% of GNP.

The stability of both economic growth and financial system in Russia depends on a resource character of the structure of its economy. Let me note that, the RF Ministry of Finance assesses our federal budget deficit, without oil and gas revenues, to be near 9.6 % of GNP in 2013 [7].

A growth of federal transfers to the RF Pension Fund became a great problem to the Russian fiscal system in the long- and medium run. Only in 2013, 2.82 trillion roubles are planning for this purpose [8] while the RF Pension Fund’s budget is approximately equal to a total budget of all RF units.

Our budget spending has grown due to numerous promises given on the eve of the presidential election of 2012 to improve living standards of different groups of the Russian population and to set defense expenditures higher in the years to come. In addition, the expenditures for public administration and mega-projects have annually grown. All these happened on the supposition of an expected 5% GNP growth annually. However, we

did not achieve the target parameters in 2012, and last year the growth rate reduced to 1.5% that is close to a statistical error. So, mounting concern of the country administration over both budget execution and possible growth of fiscal deficit and debt, especially in the medium- and long run, is quite explainable.

Over recent years, the fiscal gap of the Russian Federation has been step-by-step redistributed to the regional and municipal levels. This resulted in a gap of the total consolidated budget of the RF units in 2013. At present, this is not alarming in general since a total debt at this level is equal to 1.5 trillion roubles (less than 2.5% of GNP), and a total deficit, as estimated by the RF Ministry of Finance, will be 0.3% of GNP in 2013 [9]. This means that the growth rate of debt of the RF units and municipalities will be near 12%, perhaps, even 15% in 2013.

It should be noted that the corporate and personal income taxes which are the key sources of revenues of regional and local budgets (in addition to transfers) have no trend to increase while corporate incomes merely decrease. Moreover, loans from financial markets are much cheaper to the federal budget than to regional and especially municipal ones. So, the current government policy towards regions should be considered as risky enough.

It is well known that reduction of expenditures does not assume their higher efficiency at all, as well as their increase does not guarantee the goals declared to be achieved. So, further debates on our budget and industrial policies will obviously become sharper.

As for the future of the Russian fiscal policy and distribution of resources between the federal, regional and local levels, the following information provides the Government document on the RF Long-Term Socio-Economic Development 2030 [5] (Table 1).

Table 1

Forecast of key parameters of the RF budgetary system, % of GNP

Parameters	2013	2014	2016	2020	2025	2030
The RF consolidated budget						
Revenues (without intergovernmental transfers)	36.9	35.1	34.4	34.6	33.6	32.7
Expenditures (without intergovernmental transfers)	37.6	35.8	34.9	34.7	33.6	33.0
Deficit (surplus)	-0.7	-0.7	-0.5	0.1	0.0	-0.3
Federal budget						
Revenues	19.3	18.2	17.4	16.6	15.4	14.2
<i>Including:</i>						
oil-and-gas revenues	9.0	8.0	7.2	6.9	5.9	4.7
non-oil-and- gas revenues	10.3	10.2	10.2	9.7	9.5	9.5
Expenditures	19.8	18.7	18.0	17.0	15.7	14.5
Deficit (surplus)	-0.5	-0.5	-0.6	-0.4	-0.3	-0.3
Non-oil-and-gas deficit	-9.6	-8.5	-7.8	-7.8	-7.0	-6.0
Reserve Fund and National Wealth Fund	9.0	8.8	8.4	9.8	10.2	9.9
The RF public debt	11.9	12.8	12.8	13.2	13.9	14.7
Consolidated budgets of the RF units						
Revenues	12.7	12.6	12.4	12.5	12.6	12.9
Expenditures	13.0	12.8	12.5	12.5	12.5	13.0
Deficit (surplus)	-0.3	-0.1	-0.02	0.0	0.1	-0.1

Source: [5, c.12]

The Government, as we can conclude from the above data, anticipates a significant reduction of its presence in the Russian economy and, therefore, a tax burden in the long run. This can be seen from the fact that consolidated budgets of the RF units are expected to be reduced from about 37% of GNP to 33% while revenues of regional and local budgets will be increased from 39.7 to 45.9% and expenditures – from 39.6% to 47.3% in the summarized revenues and expenditures, respectively, of budgets of all levels.

This also allows the conclusion that redistribution of the expenditure powers is expected to be faster than redistribution of financial resources. The started practice of project planning of budgets, which assumes that most of transfers are allocated through federal programs, will contribute to fact that the RF units and municipalities will have less real fiscal powers. In the medium run (2016), the federal expenditures will rise by 17% in nominal terms while those allocated through five regional programs – only by 13% [7, c.14].

Table 2

Key budgetary parameters of the RF budgetary system (billion roubles)

Parameters	2013	2014	2015	2016
Total revenues:	24,515.3	25,941.0	28,617.8	31,413.7
<i>Including:</i>				
Federal budget	12,865.9	13,485.5	14,767.5	15,908.1
Consolidated budgets of the RF units	8,592.7	9,332.1	10,233.1	11,342.1
<i>Including revenues without intergovernmental transfers</i>	7,199.2	8,023.3	8,929.2	10,033.1
Total expenditures:	24,992.4	26,450.7	29,046.0	31,857.2
<i>Including:</i>				
Federal budget, total:	13,387.3	13,847.0	15,235.7	16,451.8
<i>Including expenditures without intergovernmental transfers</i>	8,954.3	9,775.1	10,989.4	12,018.1
Consolidated budgets of the RF units, total	8,786.7	9,438.9	10,285.0	11,363.6
<i>Including expenditures without intergovernmental transfers</i>	8,404.1	8,960.6	9,649.4	10,727.4

Source: [7, c.24].

Table 3

Forecast of key parameters of the consolidated budgets of the RF units (billion roubles)

Parameters	2013	Growth rate as compared to that of previous year (%)	2014	Growth rate as compared to that of previous year (%)	2015	Growth rate as compared to that of previous year (%)	2016	Growth rate as compared to that of previous year (%)
Revenues, total	8,592.7	106.6	9,332.1	108.6	10 233.1	109.7	11,342.1	110.8
<i>including:</i>								
tax and non-tax revenues	7,199.2	112.8	8,023.3	111.4	8,929.2	111.3	10,033.1	112.4
intergovernmental transfers	1,393.5	96.8	1,308.8	93.9	1,303.9	99.6	1,309.0	100.4
Expenditures, total	8,786.7	105.4	9,438.9	107.4	10,285.0	109.0	11,363.6	110.5
Deficit	–194.0		–106.8		–51.9		–21.5	

Source: [7, c.98].

The Government is also planning the redistribution of sub-federal fiscal revenues in favor of regions. For example, the allocation of personal income taxes between regional and local budgets will be 70:30% in 2016 instead of 60:40% in 2013. (Table 2)

The additional grants in the amount of 350 billion roubles under the Presidential Order of May 7, 2012, which are planning to keep the budgets of the RF units well-balanced in 2014–2016, do not change the picture in whole – intergovernmental transfers are planning to be reduced as compared to the level reached even in nominal terms (Table 3).

All in all, we can state that in the context of the Russian decelerated economic growth and current priorities of fiscal policy, the economic and social differentiation at the municipal level will not become less in the foreseeable future and it probably will increase.

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CLUSTERS AND TERRITORIAL INDUSTRIAL COMPLEXES: COMMON AND SPECIFIC CHARACTERISTICS

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DEFINITION OF OBJECTS TO BE STUDIED

The appearance in scientific life some new notions and terms adequate to them is a natural process. It is resulted from constant accumulation of knowledge and the birth of new objects while developing and complicating of social relations. In the field of research laws and regularities of spacial economics more and more popular now is becoming the notion of regional or territorial cluster². It is natural when revelation and new phenomenon cause corrections in scientific terminology. Though this terminology should be a little conservative, new notion is needed to be tested by time and logic and pass this exam. One of the steps in such testing is a comparison of new term with a previous determined one which is belonging to similar object. In our case such an object and therefore term is territorial industrial complex – TIC³. Is there an object naming cluster but not defined as TIC? Are there characteristics of cluster that can't be applied to TIC and vice versa? What is the design feature of new term and its ability to develop research approach to a new object?

To answer these questions we should appeal to the history of appearance and development of the term TIC. Though, first it will be useful to give definitions for two compared objects.

We cannot say that there is one standard definition of TIC⁴. Moreover, there are separate notions: “TIC-approach” and “TIC-object”, and in the last there is another sub object PO (program-objective)TIC, that is the complex to be created for the realization of mission of state importance and which has its program of development. “TIC-approach” is according to its name does not clearly determine the notion but is able to give wide presentation. This approach corresponds to specific methodology of research of any territorial system and assumes mostly possible (from the point of view of calculations) coverage of the elements of economy which territory we investigate and the interrelationships of these elements. When using “TIC-approach” for making forecast to develop territorial systems you must build and analyze advanced product, service and resource balances. PO TIC was defined by M.K. Bandman quite rigorously and this very type of objects was chiefly implemented in the process of the development of Siberia.

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² Notion “industrial cluster” does not usually involve the concentration of objects on limited territory and more similar to sectoral systems therefore let us leave it without attention. Notion “economic cluster” is introduced as an attempt to distinguish common features of industrial and regional clusters (Markov, Yagolnitzer, 2006).

³ Sometimes we use the terms TPC – Territorial-Production Complex.

⁴ Problems of forming TICs were developed by many research and project development organizations from Moscow, Leningrad, Kazan, Vladivostok, Irkutsk, Syktyvkar, Kiev, Minsk, Pavlodar and other cities of the USSR. In this paper I decided to concentrate on one example of Novosibirsk school of modeling TICs as within 40 year period was a witness and participant of the development of this scientific direction.

Put in example two mostly characteristic definitions of compared objects: one for TIC proposed by Bandman (we took it with not important abbreviations and transformed for the aims of ulterior analysis) and other for regional cluster proposed by I.V. Pilipenko who generalized many of existing definitions¹.

Territorial industrial complex (TIC) implies a planned created after planning, proportionally developing assembly of stably interrelated branches of national economy, labor and natural resources. This assembly is forming and functioning in order to solve problems of state (national economy) level, concentrated on limited and even compact territory; ensuring efficient use of resources; and served by united system of infrastructure ensuring the establishment of planned conditions of life for population and environment protection (Bandman, 1980).

Cluster firstly was defined as consulting remedy to increase competitiveness (according to M. Porter). Then it was considered wider – as regional, geographical, industrial, economical notion. In this point it stands in one line with other close notions – industrial junction, intersectoral complex, TIC.

Regional cluster is a “group of geographically concentrated in certain region companies (standort) of interfacing industries which produce similar or complementary production, whose important feature is information exchange between companies – participants of cluster and their members – leading to the increase of cluster’s competitiveness in a world economy” (Pilipenko, 2005).

Conceptual differences between TIC and cluster are considered to be the following ones:

- 1) *Origin*. TIC is a fruit of soviet researchers’ development, and therefore there is some “artificial nature” of these objects. Cluster is a product of market laws. TIC for planned economy, cluster for market.
- 2) *Place of appearance*. TIC for regions of virgin land opening. Clusters for developed regions.
- 3) *Objectives*. TIC is a technical economical structure aimed at making product for future processing. Cluster is a social economic structure aimed at human aspect with orientation on ultimate consumer.
- 4) *Composition and structure*. TIC mostly involves heavy industry controlled from one center. Cluster is a set of small and medium size equivalent companies of high tech profile which created a voluntary pool to achieve common objectives.

Let us observe on the basis of the analysis of the evolution of “TIC-approach” and, namely, TIC models the character of these differences. Are they principal and allow determine a really new object – cluster – which is significant for the modern stage of economic development and spacial organization of productive forces?

SOME HISTORY OF “TIC-APPROACH”

The basis of studies the problems of regional development using “TIC-approach” was established in the very beginning of the USSR, where this type of vision for solving problems of national economy level was quite natural. Logic and history of “TIC-object” are tightly connected with the logic and history of the development of USSR national economy beginning from GOELRO plan (state plan for electrification of Russia), from realization program of construction of Ural–Kuznetzk combine, Big Volga programs, solving Angara–Yenisey problem. Bratsk–Ilimsk, Sayansk, South Yakutsk and other TICs have been frequently men-

¹ It seems reasonable to stop on one definition of cluster including main characteristics represented in many other definitions which have been scrupulously studied by I. Pilipenko in his monograph and, that is important, have been adapted to the objective of this paper.

tioned in the directions documents of five-year plans for the development of national economy (Protocols....; Materials.... 1976; Materials.... 1980). So it was natural to link the notion of TIC exclusively with planned economy¹, which is “free” from competition, conflict of interests, demand analysis and other market instruments as one can think amiss. These market instruments are considered to be a “diamond of competitiveness” of cluster which is a group of interacting companies as compared with separate firms and companies.

The application of methods of system analysis and economic mathematical modeling allowed researchers to develop the theory of TIC towards more rigorous definitions, formalization of allocation factors, and the evaluation of the effectiveness of expected spatial structure variants of the economy. The necessity of improvement of adequacy of calculations which are in the basis of good forecasts and reasonable recommendations to further selection of variants of development and then transfer to new conditions in managing in our country, all these reasons have required further development of the theory of TIC and generalization of “TIC–approach”.

Naturally the question on reasonable use of another term – TIC has appeared in addition to many other terms suggested earlier. Sufficient reference can be the work of E.B. Alaev where he had given may be most complete description of various objects relating to the area of economic geographical and regional studies. In this work Alaev stresses that territorial objects of different level, scale and structure (including industrial junction, production complexes, urban agglomerations and similar ones) are not ordinary inventions but reflections of the “natural historical process of self-organization of a society in space” (Alaev).

In our country searching for optimal forms for organizing national economy in the form of structuring the whole economy started from the first years of Soviet state. This can be seen in the protocols of meetings of the Presidium of Gosplan (state planning committee in the USSR) in 20s of the 20th century. The solution of quite special question as the structure of newly created Gosplan met with the problems of connection Gosplan’s structure with the management structure of whole country. The task to restore sectoral structure of management had required adjustment to this system and established “narkomat” – organization similar to former ministries – to each sector. In short period of time (two-three years) it became clear that within this structure Gosplan had too weak connection with province parts of the country and they are not able to show their interests and initiatives. Central bodies (“glavk”) of narkomats were pressing force for province and therefore blocked the work of province bodies and hindered them to produce needed level of production (Protocols ... (A)).

In the section of regional planning and zoning appeared an initiative to rebuild national economy according to region factor as an “agglomeration of producing after common plan units” contrary to federative basis (when independent regions form a federation) (Protocols... (B)). It was suggested to do the segregation of regions according to close association of economic links. It was admitted that those territorial linkings can have transient and changeable character. Narcomats were criticized for their orientation on short-term planning and not for managing long-term national economy tasks. “We consider the structure of national economy to be viable that is regions over the territory of the country be selected in definite period of time and these regions be described in their production potential aspect and the needed regional administrative machine be formed in order to develop national economy. Narkomats are good as regulating structure but they are not able to build national economy” (Protocols ... (B), p. 69).

¹ Here one should pay attention on the principal difference between two notions “planned economy” and “administrative machine controlled economy”. These two notions frequently identified for the “humiliation” of plan aspect in modern world economy with absolute belief in the bad character of “administrative machine” methods for ruling economy.

Here you can see distinctly the idea that the segregation of region as the part of national economy is implemented to solve specific economical problem within definite time borders. Now we say – for social requirement or in the view of problem, program zoning. It is important to note that in that period of time the contradiction between narkomats (future ministries and then firms) and state interests had been stressed.

The evidence of conclusions to build a new structure of national economy under territorial principle had no objections in those years but the difficulties and expensiveness of such restructuring were clearly understood as there was a press of traditional and partly restored structure of the economy. Summing up discussions in Gosplan, N.N. Kolosovskiy noted: “The reasons of these difficulties – from one side is an absence of available state means for necessary reconstruction of industrial basis of the regions, from another side – impossibility to decentralize operational activity when the life of the state required “fluctuation methods” of management “depending on this very moment” (Kolosovskiy, p. 5). Another strong argument to the advantage of regional principle for building economy was social aspect of management that is coming the authorities to people and possibility to control these authorities from the beneath, by all people. “When rights of region are constantly developing then the basic needs of population are solved in regional center, in close distant to village level, thanking to this moment the whole question on coming authorities to people is under no doubts” (the same, p. 11).

Thus the necessity of segregation of territorial system that time when they had not “TIC” appeared as a result of understanding the actual fact of concentration of production and social activity on determined territories. Therefore the thesis on “artificial nature” of these systems establishing by only government decisions meets serious objections. The study of actual basics of intersectoral cooperations gave Kolosovskiy an idea of energy-production cycles (as a preimage of future intersectoral complexes), which founded physical composition for the economy of region. Even in those years the human factor had sufficient interest and not only as a labor resource. The problems of production allocation have been decided as organizing the whole life of each region.

TIC MODELS AS STRUCTURAL ELEMENTS OF NATIONAL ECONOMY COMPLEX

In the 60s of the 20th century some hope has appeared as a result of explosion in mathematical methods applied to economical studies. The idea to create “automated control Gosplan” that is a system of models of national economy planning and functioning of socialist economy. Several variants of these systems have been suggested by also IEIE of SB AS USSR – the Institute of Economics and Industrial Engineering of the Siberian Branch of Academy of Science of the USSR – (Fedorenko, Aganbegian, Bagrinovskiy, Granberg). This system contained both models of separate industries and models of territorial systems particularly TIC models which provided harmonization of sectoral “requests” for the limited resources of the territory. It is needed to note that the assignment on the scale of development of the industries of specialization have been determined under the requirements of other industries from other regions and even countries (Granberg). In other words market analysis in the meaning of the balance between supply and demand had been implemented but it was inside the model itself in the process of forming balances of corresponding products, services, resources. At a conservative estimate it can be called specific “marketing” because different variants of meeting demands have been studied. Even under the conditions of “autonomous” (i.e. out of system of models) solving TIC tasks, scopes of the industries of specialization always have been based on the necessity of meeting demand for certain product either in the framework of national economy complex and specific demand for ex-

port supplies. Scale of the development of supplementary and tertiary industries (objects) and the scale of expropriating local resources from a territory always have corresponded with the demands of industries of specialization. Better to note that in the process of designing model and further analysis of certain task, it was necessary to estimate competitive variants including their advantages and disadvantages, consequences after externalities changing that is similar to the content of estimation of “possibilities and threats” in terms of SWOT analysis.

Criterion in the tasks of local level (industry and/or territory) was as a rule the minimum of discounted expenditures that together with assumptions about permanent prices accorded with maximization of pure profit of separate element of economy. The assimilation of the methods of solving tasks of stochastic programming, development of the approach to uncertainty zones analysis allowed to detect not only optimal variant of allocation of any object and its scale but as well to estimate the area of optimality (in other words – competitiveness) of involved variant in comparison with others presented in the task.

Variants of balance proportion between supply and demand have been estimated from the position of maximization of final consuming that is in general case corresponds with the tasks of minimization of expenses (in case of multi periodical statement of problems – minimization of discounted expenses). To start calculations of national economy expenses from the level of whole economy will be natural but having in mind the requirement of further “descent” to the lower local levels (industries, sub industries, regions and separate enterprises), the structure elements should be represented in the tasks of national economy level in one or another aspect. Territorial block of models (as industrial) was a component of united system of the models of national economy planning – as an attempt to realize natural intention to strengthen centralized aspect of managing of the national economy. Thus TIC have not been “constructed from the top” but showed up from the point of view of best variants to achieve national objectives namely the maximum of population well-being. “TIC-object” has been formed as a result of optimal choice of spatial development of country: namely *this set of interrelated productions concentrated on a given territory* was found as a result of solving serial of tasks of national, sectoral and regional levels. Author is the supporter of the view that potential of national economy approach to forecasting and planning is yet not called up in our country (Lvov, Moiseev, Grebennikov).

Thus the statement that “TIC-approach” had not corresponded to a “diamond of competitiveness” of cluster (Porter) is wrong, at least in these important characteristics as demand and competitiveness analysis. We can agree that in TIC on the stage of its functioning no “inside TIC competition” was supposed to investigate, though for cluster that moment may be of principal interest. Namely this reason allow to consider a cluster to be similar to TIC on the set of objects but is specific for “post TIC” period when no big new structural changes are expected on given territory that may require studies of physical composition. More actual are the processes of evolution development with characteristics of various small (in scale but not in significance) changes in technologies, the appearance and realization of innovations which increase competitiveness of the objects on the given territory and thanks to the established in the previous period of implementation “TIC-approach and/or object” set of interrelated productions (firms, companies, enterprises etc.).

The development of computation technologies, appearance of powerful computers have ensured a chance to transfer to multi period (dynamic) models of TIC that allowed sufficiently diversify the objects of studies. It was clear that large and important changes for the economy of whole country can happen not only in newly developing regions where the utility of “TIC-approach together with – object” is undoubted but also in well-developed regions. Moreover it is expected that “TIC-object” has limited period of life namely the period of target (i.e. with the participation of state) solution of given problem. Application of dynamic factor allowed reflecting a sequence of transformations of spatial structure of economy of territory under investigation. Similar tasks have been solved for Kemerovo region (Artyushkova, Malov), for the territory where Kursk magnetic anomaly has its impact,

and even without connecting to present administrative division (Burmatova), for Vladimir and Voronezh regions. Namely for the last region the agribusiness sector was especially selected as the industry of specialization (Vorobyeva, Khudyakova). It is important to segregate the use of “TIC–approach” for the analysis of social economic development of a territory which is initially expected to be specialized both on “producing” knowledge, high technologies and their adaptation – for Novosibirsk Akademgorodok (Sevastyanov, Klistorin).

“TIC–approach” has showed its functionability and wide coverage for the problems of both newly developing regions where dominate heavy industry and mining and of well-developed regions with specialization in various activities including high-end.

“TIC-APPROACH” UNDER TRANSITION TO MARKET CONDITIONS

The answer to a question how a strong state should interfere in a market, how to find an optimal proportion between market and state regulation can hardly be unambiguous. Author is the supporter of state regulation expedience in present Russian situation.

Regulation means the skill to analyze past, forecast future and influence certain participants of the development process towards achieving expected situation. For the conditions of former USSR the necessity to investigate the area of making forecasts was undoubted as the state had controlled all life of national economy. Though, within private property framework the forecast of expenses and prices (as an element of regulation) is both a prospect and necessary attribute of state functions. The notion “civilized market” as a necessary component has the requirement to regulate personal consumption of capital lenders i.e. their incomes and ways of using these incomes (Bogachov, Zaslavskaya). After getting such opportunity (establishing safely working system of taxation, payment for natural resources and other types of fiscal mechanism) market economy has succeeded in channelling most part of surplus product to productive cumulation, education and science that ensure efficiency of market economy. In other words, the success of market economy is explained by the learned ability of society to commensurate the interests of separate subjects of economical relationships and to find a compromise between them so as to create a society of commonwealth.

One should probably agree that deep and important reasons of periodical (and accelerating) occurrence of problems of this type (regional is a particular case) are in structural changes of production forces, acceleration of these changes and scale increase (Valtukh). Market mechanism is an instrument of “fine adjustment” (Bogachov, Karagedov) has its natural limits as regulator. Regional problems have reasons both because of general economic structural shifts and availability of natural and historical territorial specific features. It is true for the countries with different political systems, property forms and scale, for Russia, Brazil, USA, Netherlands (Territorially... 1992; Heide; Larina). For our country with its huge territorial differences the detection and analysis of the ways to solve its regional problems are becoming more and more actual under any proportions of state and private forms of property in case we want to have a civilized market rather than a wild one. One of the brightest examples of a successful impact of state is a realization of program of the development of river Tennessee’s valley in the USA (Territorial; The TVA).

Very unusual but enormously important for Russia is the statement on the necessity of planning in general and on regional level made by Henk ter Heide. After investigating history and laws of the evolution of planning in Netherlands he came to the conclusion that this process was and is in present a part of “*natural order of life*” (marked down by me – V.M.). Need for joint collective activity in order to keep lands captured of sea, for maintenance and

raise their fertility, for construction infrastructure and development of intellectual potential – all these factors have resulted in the consciousness of the three most important functions of planning – running the future, troubleshooting and coordinating activity in order to achieve common aims. Nonrandomly in Netherlands more than 80% of taxes collected from regions then go to central government and after it come back in towns and provinces in different forms. Determinative role of state in future development of Netherlands fairly good combines with market mechanism when there is a freedom of “many actors on a small stage” (Heide). Though mostly clear and definitely on the regulation role of state said P. Samuelson: “Man now as it seems is not obeyed by such consideration that is best regulator is a state that regulates as less as possible” (Samuelson, p. 188).

So market economy on the modern stage of development in its socially advanced forms results in the necessity of state’s participation in regulating economy. Refusal of state regulation (especially in transition economies as in Russia now) is interfaced with loosing social concord, conflicts and catastrophes. Even such a short period of 1992–1996 of Russia’s history clearly confirms this fact. Before the beginning of revolutionary changes (in 1990!) several researchers analyzed the consequences of partially started “perestroika” and warned on the necessity to keep centralized principle in the management of national economy. It should be kept not only for that period of time but stayed “conditio sine qua non” (mandatory condition) for the successful development of modern industrial economy (Bogachov).

Experience in managing regional development in the USSR especially when carrying out large scale structural transformations always has been in a focus of foreign economic geographers. The necessity of state’s participation in this process not always and not for all observers has caused an “allergy” to soviet experience in case realization of similar transformation under market conditions.

Significant mark for distributing “TIC-approach” among economic geographers from various countries has become the International geographical Congress in 1976. Moreover from that time and under influence of some foreign researchers, TIC models application for market economy have being developed. One of the first tasks in this line has become the want for detecting entities of economic relationships and recording their conflict interests. On the example of one of depressive region in India – state Kerala – was tested TIC model with incorporated block of calculations of profitability of private businesses for different variants of production and spatial structure of the region. As well as for different measures of state support (Forecasting, 1980). Criterion for choosing a variant was maximization of the growth of new working places under limited water resources and federal investment (as a support to private business) and under the condition to achieve reasonable level of local profitability by each private business.

Changes in our country from 1985 predetermined the appearance of the cycle of works where the necessity for recording interests of entities of economic relationships has been postulated and proved (though using maximum simple outline) as a necessary condition for the development of Russian economy. Nevertheless specificity of “TIC-approach” and characteristics of design and realization of the program of development investigated region kept its originality: not “dissolving” in the whole mass of objects of regional economy try to distinguish program objects and show their impact on the development of economy over all levels of administrative and territorial entities whose interests countercross in this given problem region.

For market economy conditions (more exact for transition economy) “TIC-approach” together with “TIC-object” was realized in mostly complete form on the example of Nizhnee Priangarye (Lower part of Angara river valley) (Nizhnee; Bandman, Grenbek; Problemnye...). For this problem region not only pilot research works have been implemented on the basis of a group of optimizational, imitational and behavioral models but

also regional surface planning for separate regions have been implemented as well. The mechanism for realization of this problem has been proposed. That should be a special body to control this Federal target program with corresponding line in Federal budget and the outline of information and financial interacting between different participants developing given territory. Namely such hardly formalized aspect of TIC as its institutional structure has been considered.

CONCLUSION

Modern requirements for accelerating innovations and the facts of effectiveness of territorial concentration of firms which are generating these innovations give foundation to segregate special type of object – regional cluster. It should be agreed with those researchers who suppose that it is not true to identify notions (and corresponding to them objects) of regional cluster and TIC (territorial industrial complex). Though present set of features selected as key features I can not accept. Elements of market relationships, attention to labor resources, attention to the regions with well-developed structure of economy with the evaluation of effect from innovations, and evaluation of TIC competitiveness are represented in “TIC-object” and its corresponding models (not to mention “TIC-approach”) quite completely.

Serious difficulty of comparing these two objects is that for cluster has not yet been developed methods for formal description. Thus the problem of comparing similar characteristics would be more pictorial and rigorous. It is necessary as well to define applied aspect of the studies on detecting clusters. Works on TIC are unambiguously oriented on solving regional policy problems therefore it would be helpful to define the final aim of clusters’ further use. Research on reasons and consequences of appearing clusters would also have positive impact on the development of ways of regional policy within its “segment”.

Future researchers of regional clusters may pay their attention on the following (in my opinion) actually distinctive and unique characteristics of this new object:

- *Scale of reorganization.* For TIC – large-scaled (therefore single) changes in spatial structure of regional and country economy. For cluster – small- and medium-scaled but permanent (therefore important as well) changes in the already established economical relationships.
- *Elements of innovation.* For TIC the innovations are put in projects: forecast for 15–20 years can not be based on old technologies. For TIC in well-developed regions the effect after innovations is estimated according to the results of implemented tasks. For clusters innovations themselves are the product and objective of their activity within all period of innovations’ life (from appearance to entering market). We can say that innovation is a “criterion” for future model of cluster.
- *Information environment.* For “TIC-object” as it is an entity created for solving tasks of national economy level, information is not “limited resource”. Questions on where, when and what to be produced are defined “inside” complete project and it is characteristic not only for planned economy. For cluster the aspect of information between interfacing elements (firms, companies, and organizations) should be important to ensure their competitiveness with the help of constant developing and introducing innovations to market.
- *Target missions.* TIC is an efficient instrument in the area of realization of regional economic policy by the state. Quantitative transforms of spatial structure of an economy of whole regions require serious preliminary work using engineer documents of regional surface planning (or physical planning). The detection of existing and/or prospective clusters should probably give a signal to companies for closer

interacting and to regional authorities to promote such interaction. For this aim the research and development of economical effect evaluation of this association will be needed and implementing economical calculations of verbal validities. It should be demonstrated how this type of association (having this composition and structure of interrelationships) ensures minimum time and transaction expenses in realization of innovations in real production of services, goods and knowledge.

The notion of territorial industrial complex has not denied notion of energy production complex and very close notion of production territorial complex. TIC notion supplemented them with new characteristics whose importance was growing in time. Changes of social relationships and appearance of new tasks for spatial development absolutely require an adequate answer in conceptual and dictionary apparatus.

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STRATEGIZING THE DEVELOPMENT OF RURAL AREAS

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In developed countries, since the 1980-s, territorial strategizing has become widely spread, which is understood as independent and volitional determination by the local community of goals and the main directions of a stable social and economic development in the dynamic competitive environment with the consolidated participation of the key economic entities of the territory.

The regions of Siberia possess all the possibilities for accelerated innovative development. Federal subjects of the district have a unique potential: rich natural resources, powerful scientific research centers, proximity to the markets of countries of south-eastern Asia and China, large cities that are the growth-areas. All this is a guarantee of a quality breakthrough.

The year of 2012 was the last in the system of strategizing the development of agricultural territories based on the realization of the first State program for the development of agriculture and the regulation of markets, raw materials and food for the years of 2008–2012. Since 2013, Russia has started realizing the second State program, which is to be fulfilled in 2013–2020, that is during 8 years.

Thus, the system of state management has settled down to a course of predicted development of agricultural economy with planned goals and tasks, the volumes of financial support. It is a positive factor, as 10–12 years ago it was practically impossible to predict even mid-term perspectives for the development of such a complicated segment of economy as agricultural territories.

The realization of the State program is going on in more complicated, crucially new economic conditions.

Firstly, it is connected with the accession of Russia to WTO.

Secondly, the progressive development of Customs Union of Byelorussia, Kazakhstan, Russia and transition to Common economic space, and further to Eurasian economic union.

And, thirdly, the system of strategizing the development of agricultural territories should be considered in the context of global changes in business climate in the world food market, the consequences of crisis processes in a number of leading world economies in the conditions of continued increase of the population in the world and the growth of demands in food resources.

With all positive results of the realization of the first State program on the whole, it is impossible to evaluate it unambiguously. Most of all it is connected with very serious miscalculations of the social development of rural areas.

The social sphere preserves an unjustified lagging of the level of payment of people engaged in agriculture compared to the average level throughout the economy of the coun-

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try (53%), the social infrastructure of rural territories is developing slowly, in the majority of regions demographic problems have not been solved. According to the data of sociological surveys of All-Russia Scientific Research Institute of Economy and Agriculture, more than 25% of rural population has a disposition to leave their village, among the young people this figure is 50%.

To a large extent it is connected with the fact that in the process of the realization of the program of social development of rural areas there was carried out a so-called “optimization of expenses”, in the result of which during 5 years they received from the federal budget approximately 68.8 billion rubles less than had been planned when the program was approved in 2007.

Speaking about the development of rural areas, one should admit that the accepted practice of discrimination of immediate interests of laborers, expressed in underfunding engineering and social infrastructure of the rural areas, has been transferred to the new State program.

Thus, by the year of 2020, huge “scissors” in the levels of salaries in the economy on the whole and in agriculture will practically be preserved – 100:55.

Construction building capacities in 2014–2020 will be reduced in comparison with 2012 by 47–26%, there will be also reduced the share of families improving their living conditions in the frame of the Program in the total number of families registered as needing housing. In 2011, the share of such families was 3.5%, for 2014 the planned figure is 2.5%, for 2015 – 2.4% with the following increase up to 3.7% in 2020.

The provision of the rural population with medical-obstetrics stations will increase from 9.4 per 10 thousand inhabitants in 2011 up to 10.6 in 2020, but it will not reach the level not only of 1990 (12.0), but also of 2000 (11.3).

The level of gas infrastructure development and water supply of rural houses will increase insignificantly: accordingly from 55.2% and 58% in 2011 up to 60.2 and 61.9% in 2020.

It is evident that the support of the rural development on the federal level is insufficient and on a lot of points cannot provide even a return to the level existing 30 years ago. In this situation the role of regions’ contribution to the solution of rural areas development grows greatly.

Therefore, programs of stable development of rural areas must be evolved in all subjects of the Russian Federation. The model of integrated development of territories being formed in the Siberian Federal district is important for increasing competitiveness, maintenance of social and political stability in society, solution of tasks of the national security of the country. The listed model is based on strategic goals, priorities and long-term tasks of the development of the Siberian region, forms the basis of social and economic development of Siberia up to 2020.

The work on creating the system of strategic planning in Siberian federal district began in March of 2006, when the Plenipotentiary of the President’s Council made a decision on creating and realizing the program of social and economic development of municipal entities of all levels – from villages to rural region centers and urban districts.

In Siberian Federal district there are 320 municipal districts, 77 urban districts, 259 urban settlements and 3530 rural villages. All municipal entities prepared and approved integrated programs of social and economic development which made the basis for collaborative work of the authorities, business, professional education, science and society at the development of Siberian economy as a whole.

As a result, they were able to work out approaches to forming development priorities on a municipal and regional level, which correspond to the goals of providing national safety of the country, and come to the integrated system of strategic and indicative planning.

In the model of integrated development of the territory of Siberian Federal district there are several constituents. First of all, it is the primary and obligatory command level – the system of planning and predicting in economy and social sphere. It includes the Strategy of social and economic development of Siberia up to 2020 as well as strategies and integrated programs of federal subjects and municipal entities of Siberian federal district.

Important elements of the Siberian model are a system of stable development of territories, of small and medium-sized entrepreneurship, a system of modernizing machine-building and agricultural complexes, a system of monitoring the realization of programs of social and economic development, a system of staff training for bodies of state power and local self-government.

The basis of all territorial and branch programs and documents is constituted by unified methods of formulating strategic goals and unified approaches to their achievement. The Siberian program of integrated development of territories takes into account domestic and international experience of planning and state regulation in economic and social sphere, works of scientists and specialists in the sphere of territorial management of district regions. The offered model creates a basis for the interaction of the bodies of state power and local self-government, business and society, permits to connect branch and territory interests with the purpose of providing comfortable living conditions for the population of Siberia.

One of the main aspects of modern methods for strategizing Siberia is refocusing programs of agriculture support to programs of stable development of rural areas.

In this connection, reaching a qualitatively new level of development of rural areas becomes one of the most important state targets, but there is no scientifically founded methodology for managing rural areas.

At that, every region is directed by its own approaches to development of rural territories, often without consideration of prevailing social and economic situations on a district level and peculiarities of rural settlements, which slows down the process of development stability, weakens the efficiency of management over the territory on all levels. The absence of consistency in developing rural areas has led, to a considerable extent, to irrational allocation of productive forces, to underdevelopment of social and household structure and other disproportions which had a negative influence on efficiency of rural economy and living conditions in rural areas.

Strategizing on local level of management got spread in developed countries in the second half of the 20-th century. For local communities, to develop independently goals and the main directions of territorial development with consolidated participation of key economic entities became a necessary condition and the most efficient way to reach stability and soundness of social and economic development in a dynamic competitive environment. At that, local strategies are the basis for forming state plans and programs of territorial development.

One of the key questions of strategizing is the increase in the level and quality of life of the rural population, constituting about 30% of the Russian population, diversification and development of rural economy and infrastructure with the preservation of a considerable role of agricultural branch, providing 5% of GDP, in which approximately 10% of the population is engaged.

Creating conditions for stable development of rural areas is one of strategic goals of state regional policy, the achievement of which will permit to provide food security, to increase competitiveness of Russian economy and well-being of citizens.

However, on the federal level there is no regulatory and legal framework to regulate, on a full scale, all aspects of stable development of rural areas. Because of insufficient preparation of this problem, it is necessary to carry out scientific research in the sphere of the development of rural areas in order to strengthen scientific and methodological support for managerial bodies on federal, regional and local levels. In this connection, corresponding changes are necessary in land, forest, water, city building, housing and budget law in the part of the provision and regulation of the stable development.

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A program and goal approach in the sphere of territorial management is an important instrument of planning and regulating an economic development, creating conditions for increasing investment attractiveness of regions. This policy is realized through the introduction of innovative technologies not only in the economic activity, but also by creating decent conditions for life and rest in rural areas.

To provide the stable development of rural settlements the regional policy includes a system of strategizing organizational, economic, financial and legal measures, determining the activity of federal and territorial bodies of power, bodies of local self-government, aimed at increasing the efficiency of rural economy, level and quality of life of the rural population, as well as the rational usage and rehabilitation of natural resources potential in rural areas.

Strategizing in the sphere of the stable development of rural areas is realized along the following directions:

- creating favorable social and economic conditions for the local rural population to fulfill socially useful functions, including a production function;
- increasing employment, level and quality of life of the rural population, its competitiveness compared to urban standards of comfortable living conditions;
- improving a demographic situation and increase in expected length of life;
- the rational use of natural resources and preservation of environment;
- the preservation and augmentation of historical and cultural potential of rural settlements.

Realization of a balanced regional social and economic policy on the development of rural areas determines the necessity to observe the following principles:

- the development of rural areas as an integrated territorial complex, fulfilling environmental, social and demographic, cultural, productive and economic, recreational and other functions;
- the provision of constitutional rights of rural citizens for labor, availability of quality education, medical service and other social services;
- the state support for rural territories and settlements to provide the rational use and development of their natural, social and demographic potential;
- partnership relations between regional power and bodies of local self-government, business and rural population for purposes of the stable development of rural settlements;
- considering territorial peculiarities to support depressed rural settlements;
- widening and deepening the integration and cooperation of urban and rural areas, adapting a settlement into an integrated economic system of the region on the basis of the development of road and transport infrastructure, modern means of communication, and creating unified systems of social service of the population;
- using the potential of development of all rural settlements with established centers for inter-settlement service;
- developing local self-government in settlements, all forms of cooperation, increasing the participation of local population in making decisions, connected with perspective developments of rural settlements.

The main measures of state support for the development of rural areas were realized at the expense of the federal budget along five directions:

- the improvement of living conditions of the citizens living in rural areas, including young families and young specialists;
- gas infrastructure development in rural areas;
- the development of water supply in rural areas;
- the development of a network of general educational institutions in rural areas;

- the development of a network of institutions of primary medical care, physical culture and sports in rural areas.

In the regions of Siberian district, within the framework of the direction “Stable development of rural territories”, the development of social infrastructure and engineering facilities of rural settlements was financed with approximately 83% of the planned figure from the federal budget, and 97% from the means of consolidated budgets.

At that, in 6 regions of the district the volumes of subsidies from the federal budget, allotted for these purposes, were reduced: Altai, Buriatia – by 70, Tomsk oblast and Zabaykalsky Krai – by 21, Kemerovo oblast – by 5%. The Tyva Republic, because of the absence of means in the republican budget for co-funding, was not allotted any means from the federal budget.

Due to the deficit of means in budgets, one of the significant problems in most regions remains, as before, the impossibility to carry out a complex housing development of rural areas with the creation of communal infrastructure, provision of necessary facilities and construction of social objects.

The problem, which most of the participants of the program on housing construction in rural areas face, is that they are provided with land plots that are not prepared for housing construction (outskirts of the settlement), where there is no communal infrastructure which creates exacting terms for the developers with access to engineering systems.

At that, the mechanism of mortgage credit lending for building (buying a house) in rural areas is practically not used because of low incomes of the rural citizens and the absence of their own finances.

On the whole, the present level of state support for rural areas is insufficient for changing the demographic situation in villages and solving the problem of providing rural economy with highly-qualified specialists, capable of mastering innovative technologies and modernization of agricultural production.

The number of rural people continues to decrease; they also fail to stop the reduction of objects of social infrastructure in rural areas; the rural housing stock has predominantly no modern conveniences and has a high percentage of deterioration

Not completely there were realized tasks on opening medical and obstetric centers, branches of sport school for children and young people, building and opening organizations of retail trade and public catering, introduction of organizations for rendering productive activity services to the population and points for receiving orders on personal services. The tasks to introduce children’s pre-school institutions and gas-filling stations, as well as water protection zones were not fulfilled.

In this connection, reaching a qualitatively new level of the development of rural areas becomes one of the most important state targets, but there is no scientifically founded methodology for managing rural areas.

In rural areas the questions have not been solved in the sphere of the development of social infrastructure, stability of the population’s incomes, the budget security of rural settlements in the existing ecological situation. It is explained both by the absence of integrated researches of peculiarities of functioning and developing rural areas and by the necessarily to evolve and realize priority directions on solving problems of their stable development.

With the purpose of creating conditions for the integrated development of rural areas and the improvement of the quality of life of the rural population it is desirable:

- to increase the volume of subsidies allotted to co-funding from the federal budget for: the realization of measures for constructing housing and the development of social and engineering infrastructure of rural territories and for the support of elite seed production and land fertility;

- to increase terms and time limits of investment crediting for the construction, reconstruction and modernization of stock buildings, purchasing of agricultural machines and equipment up to 15–20 years;
- to provide enterprises, realizing projects on the construction of stock breeding complexes, with an installment payment plan (restructuring) of credits obtained before 2008 up to 15 years;
- to work out additional compensating measures directed at the retention of labor resources in the rural areas.

To retain the population and preserve the rural way of life it is necessary to strengthen the economy at a fast pace, to build housing, to increase infrastructural possibilities. Therefore, rural districts must receive legal groundwork as growth areas, territories of an intensive and integrated development.

From the position of regional management, municipal programs on the integrated social and economic development of Siberian rural areas should be adopted and realized for the stable development of territories. They are directed, first of all, at increasing employment and incomes of the rural population, the development of rural self-government, the encouragement of the development of non-agricultural business in rural areas.

Considering rural areas not only as an object of management, but also as a specific complex which stable development should be directed at economically and ecologically grounded, socially oriented expanded reproduction, we will determine the following main conditions promoting this:

- creating an efficient system of the use of resource potential of rural areas, directed at the improvement of sustinment and social and engineering development of rural areas, also providing expanded reproduction of labor forces and preservation of moral, cultural, intellectual abilities of future generations of the rural population;
- providing a stable development of the economy of rural territories with the purpose of forming a reproduction potential for further economic development and increase of competitiveness of the main kinds of activity in rural areas;
- the preservation and efficient use of nature and resource potential of rural territories with the purpose of its further reproduction and improvement of the ecological situation in rural areas.

Insufficient consideration of the ecological factor, while evolving concepts, strategies and programs of social and economic development of rural areas, schemes of territorial planning, can produce a negative influence on the development of rural areas and lead to the reduction of efficiency in using their natural-resource potential. All the more so, that, in recent years, the environment management activity has been financed from the federal budget extremely unsatisfactorily. The volume of financing varies between 0.5 and –0.8% of the expenditure budget, which is approximately 5–10 times lower than in developed countries.

To solve this problem the whole complex of objectives for the ecological development, as well as necessary investments into the environment protection activity are included into the system of strategizing rural areas. This will allow the efficient management of the use of natural resources of rural areas, thus providing a stable development of rural settlements and the rational use of the natural-resource potential.

One more long-range direction of strategizing the development of rural areas is regional marketing. Its use, together with a developed local self-government and the present system of cooperation and clusters, allows a considerable increase of the investment attractiveness and financial independence of rural administrative-territorial entities. A particular role here is given to the development of small and medium-sized entrepreneurship and diversification of the rural economy.

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Diversification processes in rural areas are preconditions of increasing the stability of the development of economy on the basis of integrated and non-waste use of natural resources, covering losses of rural people during agricultural crises at the expense of profits obtained in other branches, and also providing the population with alternative employment in non-agricultural kinds of activity.

In fact, the present system of territorial planning in rural areas is subjected to the interests of branch development where the main attention is paid to agricultural production but not to the integrated development of territories as life environment of rural people, being in harmony with natural and productive conditions, which in practice leads to underestimating social, economic and environmental aspects of the rural development.

Thus, the practicality of creating a multi-level system of planning the social and economic development of rural areas in present day conditions acquires particular timeliness and must reflect the following tendencies:

- increasing the role of a social cluster in the development of the territory, where rural people are the main productive force, who can work in any branch of economy, but live permanently on this territory;
- increasing the significance of an integrated economic development of rural areas which have a different potential (natural resources, density and structure of the population, social and historical peculiarities, etc.);
- attaching more attention to problems of natural management and the ecological development of rural areas, the solution to which is only possible with using territorial inter-branch and inter-industry approach.

In accordance with the Federal Law № 131, the bodies of local self-government have the right to set long-term and medium-term goals of local development and determine the means of their achievement. Strategic plans for the social and economic development of municipal entities become long-term guideposts in this direction.

For the integrated social and economic development of rural areas of Siberia a multi-level system of strategic planning is being realized as one of the most efficient ways of realizing strategic goals and priorities of the development. It includes strategic and tactic levels of planning on the basis of evolving prognosticative and planning documents containing the strategy, programs of the integrated social and economic development, as well as schemes of territorial planning.

Especially important for the development of rural areas in Siberia is the elaboration of programs which provide for the realization of selected directions with the consideration of various factors of the population's activity and their provision with necessary financial means.

For instance, in Novosibirsk region, with its territorial variety and range, the problem of the stable development of territories is given special significance. The efforts are directed not only to the elimination of negative factors with the help of single measures, not connected with each other. A scientifically grounded systematic approach was created which allows integrating of branch approaches with the consideration of all interconnected links, a wide and creative use of advanced experience and innovations.

For purposes of increasing the efficiency of municipal management, strengthening the interaction between bodies of state power, bodies of local self-government and business communities for the integrated development of rural areas, a pilot project "*Municipal management of stable development of Maslyaninsky district of Novosibirsk region*" was worked out by specialists of the administration of Maslyaninsky district and scientists of the department of regional economy of the Siberian Institute of management of the Presidential academy of national economy and public administration.

Its realization has been carried out since 2006 with the support of the Regional Government – as a future-oriented model of interaction between the bodies of state power, the bodies of self-government, institutions of business, science and education, social organizations and the population on the basis of state-individual partnership for the realization of priority directions of the stable development of rural areas of the region grounded on innovations and the elaboration of mechanisms for attracting investment resources into the municipal economy for short-term and long-term perspectives.

The main goal of the project is creating innovative effective mechanisms and technologies of local self-government, providing the reproduction of social, economic, natural-resource and ecological potentials and a systematic, stable, integrated and balanced socio-economic development of the rural municipal district. On the example of Maslyaninsky district, a model of municipal management is adapted, which is directed at the advance in living standards, economic activity and social protection of the rural population in the conditions of decentralization and market relationships.

The next appropriate stage in improving the investment process in the municipal entity was a transition to the innovative type of development, based on introducing into practice the achievements of science, modern techniques, advanced, resource-saving technologies, new recommended practices of labor organization.

Maslyaninsky project is not limited by purely productive aspects of agriculture. In it, there are formed modern approaches to the development of rural areas. First of all, it means the preservation of a rural way of life, but in its new, modern form, with the developed infrastructure, roads, transport, gas supply, also at the expense of the realization of national projects in rural areas. Besides, it means maximal stimulation of establishing new working places in rural settlements. At that, particular attention should be paid to non-agricultural kinds of activity (Table 1).

Table 1

**Attraction of investments to the territory of Maslyaninsky district
of Novosibirsk region, mln rubles**

No	Directions of investments	Period of investment			
		2005–2012		2013–2015	
		Total	%	Total	%
1	Industry	1291	21,5	4780	38,1
2	Agricultural complex	2000	33,3	3000	23,9
3	Housing and communal services, roads	1100	18,3	2377	19,0
4	Housing construction	660	11,0	500	4,0
5	Objects of social sphere	573	9,5	352	2,8
6	Tourism	154	2,6	1380	11,0
7	Objects of consumer's market	170	2,8	100	0,8
8	Purchase of transport, equipment	55	0,9	50	0,4
	TOTAL	6003	100,0	12222	100,0
	including budget investments	1343	22,4	2890	23,0

The implemented social and economic municipal program in Maslyaninsky district corresponds to global tendencies of the development of rural areas. This is the formation of dynamic innovative agriculture, which is impossible in the conditions of degrading social infrastructure of rural areas. Creating diversified rural economy together with good transport possibilities, developed social infrastructure and modern housing quality – this is a strategic direction of transformations in rural settlements, on which managerial efforts are focused, providing investment attractiveness of rural areas.

In recent years, the realization of the main objective of Maslyaninsky project has been successfully carried out, that is to facilitate the formation of efficient models of interaction of the bodies of state power and local self-government, institutes of business, science and education, public organizations founded on state-individual partnership for realizing priority directions of a stable development of rural areas on innovative basis and the elaboration of mechanisms for attracting investment resources for short-term and long-term perspectives.

This project does not contain analysis of all the problems, complete description of all mechanisms and technologies of strategic management of the socioeconomic development of a rural district. This work is still to be done. The authors only intended to show some approaches, proved by practice, to modernization of municipal management, which are necessary to begin a positive and integrated development of any territory, especially rural.

The main constituents of this process are:

1) the evolvement of a productive strategic concept of local development, supported by the majority of the population of a municipal entity and based on principles of self-organization and self-development;

2) search for mutual interests and agreement, the union of efforts of the bodies of state power and local self-government, representatives of private business and municipal economy, as well as of common rural citizens in joint elaboration and realization of the policy directed at the integrated development of the territory, attraction of investments, economic growth, achievement of social justice and raising living standards, growth of birth rate and retention of young people in rural areas;

3) training highly qualified specialists, the modernization and improvement of the process of municipal management itself, including the elaboration and mastering of innovative technologies, underlying modern municipal management.

In the center of the project “Municipal management of stable development of Maslyaninsky district of Novosibirsk region” is raising living standards of rural population. The project is aimed not only at the elaboration of the concept of the program, but also at the mastering of concrete mechanisms for realizing the declared goals and objectives, including monitoring and the assessment of the achieved results at different stages of work, besides the project provides the possibility of correcting and the diversification of the activity.

The project has an open character and supposes further development and the improvement of all the constituents of its directions as well as the extension of its participants due to the attraction of investors, entrepreneurs, managers, advisers.

For business, the success of the project means the formation of favorable conditions and a reliable foundation for a long-term economic development.

For large sections of the public, it is the priority of goals reflecting the idea of social justice (health care, education, and housing) and understandable ways of achieving it.

For the state, it is an experience of improving mechanisms of interaction between power bodies of different levels, the refinement of technologies for managing the integrated social and economic development of rural areas, a possibility to spread the best practices and to increase the competitiveness of the economy of municipal entities, regional and national economy on the whole.

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PROBLEMS OF MARKET INFRASTRUCTURE DEVELOPMENT IN THE REGIONS OF SIBERIA

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The paper presents the analysis of market infrastructure development in the regions of Siberia. Considered are the economic essence of regional market infrastructure and the concept of economic potential. Studied in the paper are the following issues: the degree of market infrastructure readiness to the new conditions of functioning; different types and component elements of market infrastructure; functional layout of market infrastructure and the content of the elements of this scheme. The paper examines the functional blocks of market infrastructure in terms of a system of markets. Of methodological and practical value is a comprehensive analysis of major functional blocks of regional market infrastructure – intermediate trade, informational, financial and credit, foreign trade, economic and legal markets. Considered are the problems concerning regional market infrastructure development with the emphasis placed on the aspects of strategic planning. The analysis of the external and internal environment of influence on development of regional market infrastructure is made. On the basis of the study conducted the conclusions about a significant lag of regional market infrastructure economic potential behind the increasing demand for its development in the period of transition in Russia are made. This lag does create additional difficulties in reforming the economy. Outlined in the paper are the possible directions for the development of regional market infrastructure.

INTRODUCTION

Amid transformation of Russian economic and regional systems and the formation of a civilized market and socially-oriented market relations, the problems of market infrastructure development in Russia call for further study, both at national, and at regional levels. Macro – and microeconomic problems of market infrastructure formation and development are adequately elucidated in scientific literature. However, although the problems mentioned above have been sufficiently studied, the issues concerning regional infrastructure formation, especially in the context of system reproduction approach, are not exemplified in modern literature. Thus, the processes of market infrastructure development at regional level are still not well understood, as considered were only some of infrastructure elements.

At the present time, market infrastructure should be studied not only in the context of macro- and microeconomics, but taking into consideration regionalistics and the spatial strategy as well. This is especially important in the case of the Russian Federation, with its significant inter-regional differences that affect the forms of general laws of market infrastructure development manifestation as well as inter-regional cooperation processes in the course of regional markets formation.

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With the development of regional economy, with the emergence of new market structures, and with the deepening of specialization of enterprises and organizations – subjects of the regional economy, the demand for a wide range of infrastructure services, including: trade and intermediary, financial and credit, foreign economic, information, economic and legal services increases.

In connection with this, there develops a market infrastructure system that should serve economic entities of all patterns of ownership in the regions of the Russian Federation. Modern economy requires the development of powerful telecommunication systems, information and commercial networks, high-performance means of electronic money payments in each of the regions. The insufficient level of market infrastructure development in a number of regions of the Russian Federation inevitably leads to the decrease in business activity, poor development of production, and dislocation of a normal reproduction process in regional systems.

The establishment of methodological framework of regional market infrastructure development is an urgent problem today, as the viable solution of this problem will accelerate the pace and improve the efficiency of market relations development in the regions of the Russian Federation. The research objective is to work out the methodological foundations of regional market infrastructure functioning on the basis of the analysis of regularities of market infrastructure development and peculiarities of the national economy transformation, taking into consideration a new economic mechanism in the context of developed market relations.

To achieve this goal it is necessary to determine the objective factors, preconditions and general regularities of regional market infrastructure development in the current context, to describe the methodological principles of analysis of regional market infrastructure formation, to propose the classification of market infrastructure elements at a regional level taking into account the specific criteria for the selection of different types of infrastructure services, to evaluate the current level of regional market infrastructure development and its economic potential, to consider methodological principles of the concept of regional market infrastructure formation and development, and to propose methods of economic regulation of regional market infrastructure formation and development.

METHODOLOGICAL APPROACHES TO THE MARKET INFRASTRUCTURE CONCEPT ANALYSIS

In the Russian economic literature the notion of market infrastructure formed in the late twentieth century. Studying the theoretical problems of infrastructure formation, economists have come to the conclusion that it is necessary to allocate a relatively independent subsystem of the market infrastructure, servicing processes in the sphere of circulation, along with other subsystems (production, social, institutional and environmental infrastructure), which have been discussed in sufficient detail in scientific literature of the last century. The most characteristic feature of that period of time was the understanding of market infrastructure as a part of a public sector, one of its special-purpose forms, the mission of which was to ensure favorable conditions for the realization of products. [1, 5, 8, 10].

In the early 2000s, the concept of market infrastructure acquired a new economic substance. At that point of time market infrastructure was understood as a complex of spheres of activity serving the market, the formation of which was necessary for the transition of the economy to the developed market relations. There appeared a large number of scientific papers devoted to the problems of market infrastructure development that considered only some of its elements serving specific types of markets such as a market of means of produc-

tion, a consumer market, a financial market, etc. [2, 4, 12, 13]. Less attention there was given to a comprehensive study of market infrastructure considered as a single system consisting of segments serving different types of markets. [6, 7, 9].

In modern economic literature, there are different interpretations of market infrastructure. Proceeding from the subject of research, there may be distinguished three groups of definitions of market infrastructure.

In the first group of definitions, market infrastructure is considered as a complex of industries, sectors and spheres of activity, the main task of which is to bring the goods from production to consumers. In the second group, market infrastructure is defined as a complex of enterprises, institutions and organizations. In this approach, market infrastructure is regarded as a frame of a market which represents multi-branch and interrelated network of enterprises and farms that serve the processes of barter and movement of products. In the third group, market infrastructure is understood as a set of technical facilities and equipment providing market processes. The most characteristic feature of this interpretation is the understanding of market infrastructure as a set of auxiliary and service departments and means supporting main market processes.

According to the extent to which market infrastructure is developed in the economy there may be distinguished two basic approaches. From the perspective of the first approach, market infrastructure maintains conditions for all subjects of the economy. In this case, market infrastructure is understood as organizational and economic system on which functioning of economically efficient system as a whole may be based. From the standpoint of the second approach supporters, market infrastructure serves only the processes of product distribution in the economy. In this case, market infrastructure is considered to be a system of institutions and organizations providing free movement of goods and services in the market.

According to the items considered by the authors to be the components of market infrastructure, two groups of approaches are distinguished. The first group of authors interprets the concept of market infrastructure broadly and includes in its structure almost all market institutions, with some authors adding to them the elements of state regulation system of economy and such elements of social infrastructure as education, medical care, etc. The second group of authors includes in market infrastructure only the elements of commodity circulation system, such as warehousing, logistical support services, sales and transportation organizations.

The existence of a variety of market infrastructure definitions in economic literature suggests the absence of a single methodological approach. This is largely due to the nature of specific objectives and tasks of scientific research that are largely industry-oriented and are devoted to the study of certain types of markets (a consumer market, a market of means of production, a financial market and others), or specific types of infrastructure (intermediate trade, information, legal, etc).

From a widespread definition of market infrastructure as a set of economic terms for the functioning of business that provide a sustainable development of a market system it follows that market infrastructure is directly relevant to the productive forces of a society and may be a subject of branch economic sciences study – economy of trade, logistics, etc. But the given definition doesn't include public economic relations; and the main attention is given to material aspects of market infrastructure. It is necessary to distinguish, on the one hand, “a material content” of market infrastructure, its economic potential establishing favorable conditions for the functioning of a system of markets, and, on the other hand, economic relations regarding the activities of subjects of the market for the creation of appropriate conditions for commodity and currency circulation.

Being closely interrelated with the whole system of economic relations, market infrastructure is a necessary condition for regional markets economic entities development. Mar-

ket infrastructure makes an essential contribution to the acceleration of economic development rate by means of commodity and currency circulation efficiency enhancement and by rendering a range of market services to the economic entities creating favorable conditions for business and competition promotion [3].

Thus, market infrastructure represents a set of objects and institutional structures ensuring the formation of material, financial and information relations between subjects of a market. It is a complex economic-organizing system the basic elements of which are the branches of wholesale and retail trade, general commercial activities, crediting and insurance, information and legal services functioning in a regional social and economic environment. Market infrastructure represents a framework on which a system of regional markets is based. It integrates spheres of production, distribution and consumption, provides the acceleration of commodity, financial and information flows turnover, thus promoting the increase of social development efficiency.

There are various points of view as far as the structure of market infrastructure is concerned, as authors proceed from different criteria to relegate enterprises and organizations to market infrastructure in accordance with the target goal. The analysis of foreign experience, on the one hand, and Russian regional specifics, on the other hand, permits to suggest the following classification of market infrastructure: intermediate trade (associations of wholesale trade, commercial centers, commodity exchanges, etc.), financial and credit infrastructure (commercial banks, non-bank financial intermediaries, etc.), information infrastructure (information and marketing centers, means of collecting, processing and transfer of commercial information, etc.), legal infrastructure (arbitral courts, legal and consulting companies, etc.) foreign economic infrastructure (specialized foreign trade enterprises, trade representations of foreign firms, customs organizations, etc.).

The most considerable changes take place in intermediate trade infrastructure as a result of market relations development. First of all, the character and the functions of facilitating agencies and marketing organizations change, and to the forefront move retail trade system, wholesale and retail associations, trade and logistics companies which are of great importance in establishing horizontal relations between producers and consumers of products. The financial and credit infrastructure comprises commercial banks, non-bank financial intermediaries serving all regional markets, insurance companies creating financial and economic prerequisites for work of enterprises under high entrepreneurial risk.

Information infrastructure includes regional marketing centers and firms providing modern telecommunication facilities as well, as a basis for commercial relationship and intra-regional and inter-regional economic interaction development. Besides, a normal functioning of the market depends to a large extent on a reliable legal support which is connected not only with the arbitration of various problems, but also with the proper drafting of agreements and transaction according to the established legal norms.

PROBLEMS AND PROSPECTS OF MARKET INFRASTRUCTURE DEVELOPMENT IN RUSSIA

The formation of regional market infrastructure is directly related to every particular region and in many respects depends on a spatial organization of sphere of circulation in each region or in a city. Along with solving organizational problems concerning new infrastructure elements formation, the analysis of infrastructure development in the context of its marketability should be made.

In the initial stage of a transition period practically all regions of Russia (except for the metropolitan region) were characterized by the essential lagging of market infrastructure

development behind the market system demand for its services. The comparative analysis of market infrastructure enterprises and organizations availability parameters in Russia and in the USA shows that the availability of basic elements of market infrastructure in Russia is only 17.1 to 25.2% of that of the USA. The only exclusion is the stock exchange infrastructure availability in Russia; according to the data analyzed it is 72.7% more than that in the USA. It is accounted for by the rapid development of stock exchanges, dealer firms, brokers' boards and offices in the early nineties when there was no clearly defined trade and stock exchange legislation and which executed functions not characteristic to them such as consumer and not-consumer goods wholesaling in that period. The analysis of wholesale business availability parameters allows us to speak about the essential lag, both in the number of wholesale distributors, and in their modern trade and logistic equipment supply.

The index of financial and credit infrastructure availability in the regions of Russia (except for the metropolitan region) is 4.8–7.3 times that of the USA. But it is not the quantitative characteristics of availability; it is the considerable lag in the level and quality of intermediary and financial services, which is one of the constraints to the transition to the developed market relations. Lack of the developed market environment impedes small business growth, doesn't promote the attraction of the foreign capital and hinders the development of business activity in many branches of the real sector of economy.

While market infrastructure is generally underdeveloped in Russia, the unevenness and imbalance of its development is observed in each of its regions. Thus, much of infrastructure is concentrated in Moscow and Moscow region, where banking density is 15.6 units per 100 thousand people while in the other regions of Russia it is much lower, within the range of 3.9 to 6.9. The availability of trade and logistics infrastructure in the regions of Russia is 1.6 to 3.6 times that in the Moscow region.

To characterize the position of market infrastructure in the regional economy, it is necessary to analyze parameters characterizing its share in the total production, capital investments and employment in a regional economy. According to the calculations made on the basis of national accounts statistics, the share of services of market infrastructure in gross domestic product of Russia was 8.2% in 1990 and 29.1% in 2008. Unfortunately, the existing state statistics system can't give a full quantitative assessment of market infrastructure on all parameters both in Russia and in particular regions. Therefore, we'll consider the parameters of intermediate trade infrastructure that is sufficiently represented in the existing system of statistical reporting.

In 1990–2008, the share of services of intermediate trade infrastructure in gross domestic product increased nearly 3.3 times (from 5.0 to 16.5%), and the share of the employees grew about 3.3 times (from 6.6 to 8.7%). These trends are attributed to the increased intermediate trade activity, the high profitability of trading operations, the creation of new intermediate structures, and the development of new trade services in the context of economic reforms.

However, the share of the intermediate trade infrastructure in the total capital investment decreased (from 2.9 to 2.3%). This is accounted for both a general trend to reduce investment in the transition period, and maximization of profits of sole proprietors and their disinterest to invest into physical infrastructure development.

A comparative analysis of intermediate trade infrastructure development parameters in Russia, in the USA and in Great Britain shows that the share of services of intermediate trade infrastructure in the gross domestic product of Russia roughly corresponds to that of industrialized countries. At the same time, if taking into account its share in the total capital investment and the number of employees, intermediate trade infrastructure in Russia lags far behind the United States. A high level of physical infrastructure development in western countries is ensured by corresponding capital investments, which are in the order of 10–11% of the total investment in the economy.

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The analysis of dynamics of parameters characterizing the share of intermediate trade infrastructure in the amount of man-power employed in the economy of Russia and the corresponding parameters in the western countries suggests that intermediate trade infrastructure is a fairly capacious sector of capital procurement of labor that is released in industry and other branches in the course of economy restructuring. Further development of intermediate trade infrastructure both in a quantitative sense (the increase of the number of trading firms and expansion of their material and technical basis), and in qualitative sense (diversification of commercial services providing both to enterprises, and to population) may result in the increase of the amount of man-power employed in intermediate trade infrastructure up to 17–18% of the total employment in the economy.

Thus, under current economic development of Russia, market infrastructure becomes a major sphere of social reproduction, with the sales revenue of services being nearly 1/4 of the gross domestic product of Russia.

During the last decade established was the basis of a new system of commercial banks in the regions of Russia. The analysis of commercial banks distribution in the regions of Russia allows us to draw a conclusion concerning their distribution by the principle “center – periphery”. Nearly a half of all commercial banks of the country (45%) are concentrated in the Central economic region while the share of other regions is within a range of 2 to 8% (with the exception of the North Caucasian region where 12% of commercial banks of the country are located).

The calculations of density coefficients of banking network including commercial branches showed that the level of development of banking infrastructure in some regions is nearly 1/3 of that in Moscow. The lowest values of density coefficient of banking network are in Central Chernozem (3.9), Northwestern (4.1), Volga–Vyatka (4.2), Uralsk (4.2), Volga region (4.8), West Siberian (4.9), the East Siberian (4.7) regions, while in Moscow it is as much as 15.6 units on 100 thousand people of the population.

The concentration of banking capital accompanied by acquisition of small and medium-sized regional banks by large Moscow banks becomes one of the main tendencies of commercial banks development. This tendency is strengthened due to the fact that many regional banks get into financial difficulties connected with a general unfavorable regional economic situation, disinvestments, shortage of current assets. Regional banks have to adjust the restructuring of the banking system and regulatory requirements of the Central Bank of Russia getting stringent.

For successful development of international economic relations and attracting foreign investments it is necessary to form the external economic infrastructure in the regions of the country. In the course of reforms set of positive changes took place in the regional external economic infrastructure. Among them there is the development of international banks branch network, the formation of regional financial markets, the management of representations abroad, consolidation of regional customs services, further development of modern media of communication and means of advertizing, international transportation services. In regions there have appeared big specialized foreign trade companies; in large cities of Russia there develops a network of world exhibitions and international fairs.

At the same time, despite Russia's accession to the World Trade Organization, a level of regional external economic infrastructure development in Russia doesn't meet the world requirements yet. Standardization and licensing procedures, when importing production, fall short of international standards, rules and guidelines, and this creates great difficulties in the course of execution of documentation. Insufficiently developed is the insurance system of export-import operations and investments, certification of production, product quality certification and requirements are not up to a standard. The system of patenting of scientific research results and financing of patenting operations isn't adequately developed as well. As foreign economic regional activity develops the absence

of a full-fledged information market is increasingly notable. A serious obstacle for its development is the high information services price for regional consumers. A leasing system still remains insufficiently developed.

The external economic infrastructure becomes of great importance for regional development providing not only the exchange of goods, services, and information, but also capital transfers. It is connected first of all with the attraction of foreign investments for the joint exploitation of regional natural resources, their complex use, the development of production of goods and services, etc. The developed external economic infrastructure promotes the attraction of foreign investments into a region, intensification of its international economic activity, more complete satisfaction of its needs in production and services, the attraction of additional financial resources, new technologies and modern managerial experience.

The development of external economic infrastructure may become the prime factor ensuring the development of international links of regions of Russia. The activities in that direction assume the cooperation of the subjects of regional economy not only with the committees and commissions of regional legislative and executive authorities, but with the scientific and public organizations when preparing application documents, projects and feasibility studies for various international funds and organizations. Now, among perspective regional projects having real chances of winning grants from the United Nations, European Economic Community or from other international organizations and funds, there may be projects concerning the creation of international scientific and ecological centers for the complex study and development of Siberian resources including the development of a complex of infrastructure facilities (transport, communication, trade, recreational, hotel service, etc.) [11, 14].

THE STRATEGY OF REGIONAL MARKET INFRASTRUCTURE DEVELOPMENT

Under current conditions it is necessary to draft fundamental concepts of regional market infrastructure development for the long-term period defining the main stages of its realization, determining the strategy of regional market infrastructure development including a system of high priority activities.

Fundamental concept of market infrastructure development at a regional level involves the following statements. First, the structure of a regional market system includes several types of markets (a market of means of production, a consumer market, a financial market, a real estate market, etc.), each of which has its own infrastructure and market regulations specifics. Secondly, each type of a market is characterized by specific subjects of market infrastructure which define its performance indicators, forms and methods of management. Thirdly, the infrastructure of each market develops under the influence of and in concert with the other elements of a market system. Fourthly, the mechanisms of regulation of infrastructure of different types of markets should be developed on a consistent basis considering interrelations of all types of markets.

In accordance with this concept a long-term goal of development should be the creation of regional market infrastructure system on the basis of trade and intermediary, financial and credit, information and commercial, foreign economic and administrative relations between all elements of a market system. To establish a scientific rationale of a long-term regional market infrastructure development it is necessary to define the strategic objectives and priorities of a regional market system, the main directions of market processes development and the means of its regulation.

The concept under development should be based on a long-term forecast of social and economic development of a region including the forecast of rates and proportions of economic development, changes of economic structure, dynamics of production and consumption of goods and services, tendencies of scientific and technical development, interregional market relations, living standard of the population and the development of social sphere, etc. The concept of regional market infrastructure development as a long term instrument may provide local authorities with long-run guiding lines taking into account a choice of possible implementations; determine the ways of developed market infrastructure formation; reveal social and economic, investment and environmental problems of regional market infrastructure development in the long term and real possibilities of their solving; substantiate forms and methods of economic and legal regulation of infrastructure of regional markets of all types.

The elaboration of the concept of regional market infrastructure development at the level of oblast, krai, or autonomous republic and its practical realization can be entrusted to the local authorities' regional infrastructure development commission of oblast, krai or republic. The establishment of such a body at the level of a region will allow filling a void in a managerial system and may help to cope with the following tasks:

- to establish a unified information system of regional market infrastructure development analysis and forecasting;
- to create conditions for the development of the whole system of regional market infrastructure and the enhancement of regional economy efficiency;
- to work out a single economic and technical policy of regional market infrastructure development;
- to coordinate a work of separate elements of market infrastructure so as to solve shared regional problems;
- to ensure a proportional development of all subsystems of regional market infrastructure;
- to create favorable economic conditions and a congenial investment climate in a region for the development of business activity and attracting new investments from the other regions and states.

These problems can be solved on the basis of an adequate economic mechanism of regional infrastructure development.

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SOCIAL INFRASTRUCTURE OF SIBERIAN REGIONS: CURRENT SITUATION AND SOME PROBLEMS OF DEVELOPMENT

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Amid globalization, the competition between countries and regions for the main factors of economic growth including highly skilled labor forces increases. The “winners” of the attraction of manpower resources and population become regions characterized by a high level of social spending, growing standards of a quality of life, which create a comfortable living environment for the population.

Human development is the basis of innovative economy. So it requires priority investments, including those state-financed, into the healthcare, education, culture and other social sectors.

Complexity in solution of the problems of social development in Russia is connected both with the large space of the country and its high heterogeneity, and with the case of Federal State’s delimitation of rights, responsibilities and financial resources between two levels of the state authorities and bodies of local government.

Siberia and the Far East are still problematic areas, where the level and quality of life of the population do not fully offset the impact of even more complicated natural - climatic conditions of life. This leads to the outflow of the population, including a highly skilled labor force, to the other regions of the country and abroad. Challenges and threats to the development of these areas largely lie in the socio-demographic plane.

Social infrastructure is a part of the broader concepts such as a social development of a region, conditions and a quality of life. It acts as the facilities to provide health care, education, sports and cultural activities; it is the place where social relations and contacts are being implemented.

There is no unique definition of the social infrastructure as the category of the regional economy. As a rule it means public health and social care facilities, education facilities, sports, cultural and recreational facilities. Investments in social infrastructure are a very important part of “investment in human capital”.

Social infrastructure “attached” to a particular area, to the place of residence of the individual. Production and consumption of most of the social services are highly localized.

To produce services, social infrastructure acts as a specifically local phenomenon. Firstly, the main part of the daily needs of the population is met on a compact territory within the pedestrian and transport accessibility. Secondly, local and regional authorities are the most important regulator of the social infrastructure development, as well as sources of financing and some other necessary resources. They incur major social expenses and are responsible for the provision of social, educational, cultural, recreational and other services for the population of a local system (municipal entities, constituent entities of the Russian Federation).

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In a market economy social infrastructure development and the availability of their services depend both on the income of the population and on the public authorities activity. Regional and municipal finances are major factors in the development of social infrastructure. Financial support for the regional and municipal initiatives can be provided by Federal funds and with the implementation of Federal targeted programs.

Governments in the majority of regions of the Russian Federation (RF) are subsidized. About 70 constituent entities of the Russian Federation of 83 permanently receive subsidies – differential (equalization) grants (which are unconditional grants) – from the Federal Fund for financial support of the entities of the Federation. Despite this, the existing differences in regional levels of social development are still very high, especially in regions with difficult natural and economic conditions. As a result a human potential in these regions is decreased, migration to the regions with better living conditions is increased.

Siberia has always lagged behind the European regions of the country in the development of the social sectors and as a residential environment. During Soviet times, the creation of large industrial enterprises in Siberia was accompanied by a lag in the development of social infrastructure held true for a long time.

The implementation of market reforms and the new economic and political conditions in Russia have revealed the following problems in the social infrastructure of Siberia:

- In the period 1990s – early 2000s investments in the social sectors were sharply decreased. As a result the volume of capital repairs declined, physical depreciation increased, till to the complete destruction of capacities sometimes.
- In many cases, service facilities are characterized by low quality of services provided (that is low level of improvement and of technical equipment), lagging behind the needs of the population and progressive standards of service.
- In most of the Siberian regions, the existing spatial network of facilities does not correspond to the changed allocation of productive forces and to the resettlement of population and demands in this regard, structural optimization.

At present, the problems of improving the quality of life of the population are solved on the whole territory of Russia, including the modernization of the social infrastructure. In 2004–2005 the priority national projects (PNP) “Education” and “Health” gave the beginning of these processes. Then some national initiatives for sports facilities came, and let the smaller, but certainly significant. New approaches to the modernization of cultural facilities are being developed (called as “road map” of development).

Discussing the first results of the modernization reform, Health Minister of Russia Mrs. V. Skvortsova noted that the PNP “Health” and regional programs of modernization of health care have brought the huge contribution to development health facilities, particularly obstetrics and pediatrics. However taking into account the huge depreciation of the facilities of obstetric and childhood services (it exceeded 70% in 2010, and in some regions reached 80–100%) a need to upgrade more than 85 thousand obstetric and pediatric hospital beds as well as need to construct new perinatal centers and children's hospitals remained by the beginning of 2013¹.

Along with the results achieved a number of significant shortcomings, including unjustified closure of feldsher-midwifery posts (feldsher and obstetrical stations), rural hospitals, and maternity hospitals are observed. This caused discontent of the population in many regions, including Siberian regions. President of the National medical Association Professor L. Roshal said: “Such restructuring is not needed for Russia. Economics in health care is necessary, but not that way”². We need to rectify these shortcomings.

¹ Meeting of the Council for priority national projects and demographic policy on February 26, 2013, Moscow region, Novo-Ogarevo. (<http://state.kremlin.ru/face/17586>)

² Op.cit

During 2000–2011 the situation with education facilities has also improved. Availability of pre-school educational establishments increased; the number of pupils of general educational establishments in second and third shifts (as percent of total number of pupils) declined. However the relative position of the Siberian entities of the Russian Federation on the background of other regions has practically not changed. Most of them occupy in the Russian Federation entities ratings the positions in the sixth-seventh (eighth) dozens among the 83 constituent entities of the RF (Table 1).

Table 1

**Some indicators of education facilities availability in Siberian entities
of the Russian Federation, 2000, 2011***

Regions	Availability of places at pre-school educational establishments, percent of total number of children				Number of pupils in second and third shifts, percent of total number of pupils			
	2000		2011		2000		2011	
	%	rank in RF(1-83)	%	rank in RF(1-83)	%	rank in RF(1-83)	%	rank in RF(1-83)
Russian Federation	55,0		60,6		20,8		13,8	
North of Western Siberia								
Tumen Region	59,7	32	65,1	31	32,8	77	19,9	68
including:								
Khanty-Mansiysky Autonomous Area – Yugra	62,5	30	58,0	56	38,9	81	24,4	76
Yamalo-Nenetsky Autonomous Area	68,8	19	67,4	23	35,1	80	24,7	77
Siberian Federal District	48,0		55,7		24,6		18,4	
South of Western Siberia								
Omsk Region	40,7	75	56,5	62	22,3	49	13,2	43
Tomsk Region	55,6	40	60,4	48	24,4	59	23,1	74
Novosibirsk Region	46,4	66	59,1	52	21,5	44	16,4	56
Kemerovo Region	51,2	56	57,6	57	32,8	78	23,9	75
Altay Territory	44,6	71	55,1	66	23,1	53	18,8	61
Republic of Altay	33,9	80	40,4	78	25,6	63	25,4	78
Yeniseisk region								
Krasnoyarsk Territory	53,7	46	56,0	64	18,3	28	10,2	26
Republic of Khakasia	47,0	64	57,4	59	24,6	60	16,1	54
Republic of Tuva	46,2	68	38,4	80	34,2	79	31,2	80
Baikal region								
Irkutsk Region	55,8	38	57,2	61	29,8	76	22,0	73
Republic of Buryatia	36,7	79	49,7	74	19,4	32	18,0	59
Zabaikalsk Territory	40,6	76	54,6	67	23,9	57	19,4	65

* In our study, the Russian Federation entities geographically appropriated to the notion of «Siberia» (as West-Siberian and East-Siberian economic areas) are considered. For our purposes, fifteen entities of the Russian Federation are grouped in four groups according their economic-geographical location: 1) the North of Western Siberia, 2) the South of Western Siberia, 3) Yeniseisk region of Eastern Siberia and 4) Baikal region of Eastern Siberia.

Source: *Regiony Rossii: Sotsial'no-Ekonomicheskie pokazateli* (Regions of Russia: Social-Economic Indicators), Moscow: FSGS, 2012. – 990 p. http://www.gks.ru/bgd/regl/b12_14p/Main.htm

Furthermore the dynamics of indices of life expectancy in Siberian entities of the Russian Federation (in 2000, 2005 and 2011) was considered. This is one of the most important indicators characterizing the quality of life.

For the considered period the life expectancy of Russians has increased. However Siberian Federal district is still in the penultimate place within the Federal districts of the Russian Federation. The last place of the life expectancy takes Far East Federal district. Within the entities of RF, Zabaikalsk Territory, Irkutsk Region and Republic of Buryatia, situated on the territory of Baikal region, are characterized by especially low life expectancy (in addition to the republics of Tuva and Altai) (Table 2). It should be noted positive dynamics of the Krasnoyarsk territory moved with 74-th on the 58-th place in the Russian Federation. However, in 2011, the indicators of life expectancy of none of the twelve entities of the Siberian Federal district did not exceed the average Russian level.

Table 2

Life expectancy at birth (number of years)

The regions	Number of years			Rank in RF		
	2000	2005	2011	2000	2005	2011
Russian Federation (RF)	65,34	65,37	69,83			
North of Western Siberia						
Tumen Region	65,90	66,66	70,45	26	20	17
including:						
Khanty-Mansiysky Autonomous Area – Yugra	65,87	67,82	70,91	28	12	14
Yamalo-Nenetsky Autonomous Area	66,71	67,58	70,16	16	16	23
Siberian Federal District	63,66	62,70	67,72			
South of Western Siberia						
Omsk Region	66,20	65,15	69,50	24	32	34
Tomsk Region	64,94	65,11	69,53	42	34	32
Novosibirsk Region	66,30	65,11	69,68	23	33	30
Kemerovo Region	62,69	61,43	66,18	70	72	72
Altay Territory	66,58	64,62	68,97	18	40	44
Republic of Altay	62,83	60,38	65,40	66	76	79
Yeniseisk region						
Krasnoyarsk Territory	62,45	63,02	68,27	74	55	58
Republic of Khakasia	62,75	61,11	67,75	69	73	63
Republic of Tuva	55,16	55,84	61,39	83	83	83
Baikal region						
Irkutsk Region	61,23	60,32	65,93	80	77	76
Republic of Buryatia	62,68	60,96	66,09	71	74	73
Zabaikalsk Territory	61,49	59,33	65,75	79	80	77

Source: Regiony Rossii: Sotsial'no-Ekonomicheskie pokazateli (Regions of Russia: Social-Economic Indicators), Moscow: FSGS, 2012. – 990 p. http://www.gks.ru/bgd/regl/b12_14p/Main.htm

No doubt, the improving of the quality of life, considered as a large-scale structural maneuver, requires significant capital investments into the service facilities.

Investments used to finance the development of the social infrastructure have many sources: federal budget, budgets of constituent entities of the Russian Federation (sub-federal or “regional” budgets), municipal (local) budgets, state non-budget funds of the Russian Federation, corporate finances, and business finances. The main sources of financing remain sub-Federal and local budgets, with funding from the Federal budget.

In our studies the methodical approach to the comparative regional analysis of the financial resources for the development of regional social infrastructure was proposed. It includes joint calculation of the groups of investment and fiscal indicators, allowing inter-regional and cross-sectoral mapping and to explore the dynamics of the processes.

This approach makes it possible:

- to reveal the degree of regional differentiation of investment costs (fixed capital costs) used for the development of three groups of the social services (three types of economic activities according to the budget classification): 1) education; 2) health and social work; 3) other community, social and personal service activities;
- to quantify the amounts of budget funds – both from the Federal budget and the consolidated regional budgets – within the fixed capital investments of the constituent entities of the RF on the territories of Federal districts of the Russian Federation;
- to calculate and compare the share of capital investment expenditures in total expenditures of consolidated budgets of constituent entities of the Russian Federation on the territories of Russia's Federal districts.

The results obtained indicate the level of fixed capital investment into the development of social infrastructure in Siberian Federal district (SFD) (per capita) in all three groups of service activities below the national average in those groups. (The level of investment by economic activity “health care and social services” in SFD in 2011, which was 118% of the average for the Russian Federation this year, was as an exception).

It is especially high backlog of capital investment expenditures by economic activities “other community, social and personal services”. This includes sport and cultural activities, recreational activity and others. The level of such capital expenditures invested within the territory of SFD (per capita) for all the years considered (2004–2011) didn't rise above 41–53% of the Russian average.

In other words the share of the Siberian Federal district in the capital investment expenditures by social services activities is permanently significantly lower than the share in the population of Russia.

Speaking about the first two groups of activities (“education” and “health and social work”) we should note the appearance of more than seven years ago such effective complementary tool to its development as priority national projects (PNP). With regard to the sports and cultural activities such projects have not been used. Investment opportunities in these activities are largely defined by financial opportunities of sub-federal (regional) and local budgets. Budgets of the most Siberian regions are subsidized from the federal budget. The problems of development of social infrastructure in Siberia indicate that existing forms and instruments of such support are insufficient.

The results obtained also indicate that the shares of capital investment in expenditures of consolidated budgets of the entities of the Russian Federation in the Siberian and Far East Federal districts throughout the period 2004–2010 were the lowest in the country. In 2010 these shares amounted to 6.9% and 7.1%, respectively, while the average level for the Russian Federation was 9.5%. In 2008, the figures in these districts were 8.9% and 8.6%, while the average share in the country became 13.8%. The volume of investments (in absolute and relative terms, per capita) in the Siberian Federal district, funded by

consolidated budgets of the constituent entities of RF, was one of the lowest among the Federal districts of the Russian Federation.

In our opinion, one of the reasons for this is the objective need of the higher share of *current expenditures* in the expenditures of regional and municipal budgets in areas with complicated economic-geographical features (severe climate, small and scattered settlements, poor transportation network, etc) than in the most areas of the European part of the country. Accordingly, the fewer opportunities for the implementation of *capital investment spending* including the development of social infrastructure are available.

Within the standard technique of regional differential (equalization) granting by Ministry of Finance of Russia only some of such special regional characteristics are taken into account. Furthermore the technique aims primarily to support for current rather than capital investment expenditures of regional budgets. As a result, in 2005–2011 the level of expenditures of the consolidated budgets of the entities of the Russian Federation (per capita) on the territory of Siberian Federal district amounted to 89, 88, 87, 83, 86, 88 and 87 per cent to an average level of expenses (Table 3). However, the level of capital investment spending of the consolidated budgets of the entities of the Russian Federation (per capita) on the territory of Siberian Federal district was much lower: only 48, 48, 49, 53, 51, 64 and 75 per cent of the average for the Russian Federation in the same years.

Table 3

Some budgetary and capital investment indicators of the consistent entities of the Russian Federation on the territory of Siberian Federal district (per capita, RF = 100%)

Indicators	2004	2005	2006	2007	2008	2009	2010	2011
Total expenditures of the budgets of the entities of the Russian Federation	91	89	88	87	83	86	88	87
Fixed capital investments, total	65	70	75	78	79	77	79	84
<i>including:</i>								
Budget funds, total	53	53	56	57	65	72	72	75
<i>including:</i>								
of the federal budget	62	62	70	68	83	91	79	75
of the budgets of the consistent entities of the RF	48	48	48	49	53	51	64	75

Source: Calculated on the basis of: Regiony Rossii: Sotsial'no-Ekonomicheskie pokazateli (Regions of Russia: Social-Economic Indicators), Moscow: FSGS, 2012.

To complete a brief overview of the problems of development of social infrastructure of Siberian regions, let us make some conclusions.

In order to effectively create a comfortable conditions of life for the population of Siberian regions the only comprehensive system approach to solving problems of social infrastructure development, covering all levels of public administration, state and municipal, is needed.

The improving of budgetary and regional policy of the Federal government in supporting the development of social infrastructure of the entities of the Russian Federation should play a special role. It is necessary to continue the development of mechanisms to diversify the conditions of the Federal support subsidization for the development of social infrastructure in various regions. Thus, it means strengthening state support for the regions with unfavorable economic-geographical conditions, such as: low population density, large distances between settlements, higher costs for construction of facilities because of the severe climatic conditions, poor transportation infrastructure, and others. For this purpose the development and application of specific quantitative indicators, reflecting the spatial characteristics of the various territories, will be required.

SOCIAL, ECOLOGIC AND ECONOMIC ISSUES OF UTILIZATION OF NOVOSIBIRSK OBLAST WATER RESOURCES

*Valentina A. Vasilenko*¹

INTRODUCTION

The Novosibirsk Oblast is located in south eastern part of West Siberian Plain, mostly in-between rivers Ob and Irtysh. Its length from west to east is more than 600 km and from north to south – more than 400 km. Its territory is 177.8 thousands square km. and borders on Kazakhstan, the Altai Krai, Kemerovo Oblast, Omsk Oblast, and Tomsk Oblast. The climate in Novosibirsk Oblast is continental; specifically it is apt to sizable temperature fluctuations (within 24 hours, seasons, and from year to year), low volume of atmosphere precipitation (250–500 mm per year) and its uneven distribution throughout a year (70% during warm season), and unstable moistening of the territory in different years.

Around 430 rivers that run more than 10 km and 21 rivers that run more than 100 km are in the territory of Novosibirsk Oblast. The largest rivers among them are Ob and Om. The Novosibirsk Oblast is among the lands with deficit in water supply. In low flow periods the deficit reaches 8 million cubic meters of water per year, that fact negatively influences environmental conditions and conditions for social and economic development. Let's briefly consider main issues of low water years.

DECREASE OF RIVER STREAM FLOW AND WATER CONTENT OF LAKES UNDER THE INFLUENCE OF BUSINESS ACTIVITIES AND CLIMATIC FACTORS

The Ob-Irtysh basin is the main source of drinking water, domestic, industrial and agricultural water supply for the Novosibirsk Oblast. Hydrological situation is negatively influenced by water extraction for domestic and household needs. Solution of this problem is connected with the withdrawal of sand and gravel mix from Ob river bed. During sand extraction the river is sinking and water intakes become "bare". This situation inevitably leads to an increase of risk of emergency situations occurrence.

Dredging operations and other types of anthropogenic activity (development of water collecting areas, swamp drainage, channel rectification, and etc.) change the formation of river flows and hydrologic behavior of many watersheds. Due to this reason water ceased to be a renewable resource to the full extent in several districts of the Novosibirsk Oblast. Minor rivers disappear under the influence of business activities and climatic factors.

Rise in air temperature causes water to evaporate more from the soil surface, so swamps and lakes are gradually drying up. More than 3500 lakes are located in Novosibirsk oblast. Each of them is 1.5 square km. Lake Chany, the largest lake after East Siberian lakes Baikal and Taimyr, West Siberian natural water reservoir fed by low rivers Kargat and Chulyum, is being dehydrated. During last centuries, the lake is drying out, its wa-

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ter becoming more salty, and its water surface area changes according to fluctuations of climatic factors and moisture intrasecular cycles, as well as a result of development of adjoining territory.

At the end of 18th century the area of Chany system reached 10–12 thousand square km, in the beginning of 19th century – 8 thousand square km, and today it is 3.6 thousand square km. The researchers assumed that in 1840s the lakes of Chany system fell into separate water basins. Since that time Chany lake is within the confines of modern basin. Lake Chany drying process stipulated changes in temperature and oxygen regimen of water, as well as formation of expansive shallows, 25% of shallows freeze through the bottom, thus significantly decreasing fish resources. The drying process had led to the increase of water salination up to 20 grams per liter. This presents a threat to all aquatic organisms living in the water basin.

In the last decades Ubinskoe Lake lost around 60% of its total volume, became much shallower, its depth dropped down from 1.5 meters to 70 centimeters, and the level of its water salinity has grown.

The data of state monitoring network show that climate warming in Siberian territory proceed almost twice as fast as total climate warming on the planet. From 1976 to 2011 average annual air temperature in West Siberia had grown by 0.9°C, and in East Siberia – by 1.8°C. According to existing prognosis, the air temperature in Siberia in 100 years will be warmer by 8°C, and in the world – in average by 2°C, than at present. [Frolov A.V. Razvitie sistemy gidrometeorologicheskoi (vodnoi) bezopasnosti Urala, Sibiri i Dalnego Vostoka // Vestnik Soveta Bezopasnosti Rossiiskoi Federatsii (Development of hydrometeorological (water) safety of Ural, Siberia, and Russian Far East // Bulletin of Security Council of Russian Federation) – 2012. – No 4. – P. 108–117 (in Russian)]. The temperature increase already caused a decrease of Ob river water content during summer by 17–30%. This presents a danger to natural environment, hydraulic power industry, shipping industry, and domestic water consumption.

DAMAGE TO AGRICULTURE FROM DROUGHT

The Novosibirsk Oblast is located in the area of risk farming with unstable natural moistening of lands. In the dry year of 2012 country people did not receive total volume of revenue they planned to get. Dry winter and spring had caused winter crop failure and did not allow to aggregate necessary volume of moisture in a land for development of spring crops. The summer was also unexpectedly hot. So, for example, in July of 2012 for the first time in 113 years of monitoring in Novosibirsk the volume of water precipitation was only 3.5 mm. Deficiency of water precipitation destroyed significant part of scarce emerging crops. Cereal crop capacity was just 11 dt/ha (hundreds kilograms per hectare). Severe natural and climatic conditions caused the damage of 400 thousands hectares of cereal crops. The damage caused to agriculture by dry season was estimated at 4 billion rubles.

Although oblast was able to fully satisfy demand in cereal crop, its export to other regions came out at only 400 thousand tons (in 2011 its volume had reached 1.5 million tons). Agricultural producers suffered from the dry season (566 farms) received additional state support – 3.5 billion of rubles. Allocated funds were directed to reimburse the expenditures connected with purchasing mineral fertilizers, crop protection agents, transportation expenses, as well as for launching regional programs for development of beef and milk cattle breeding. [Novosibirsk Oblast farms suffered from dry season will receive state support / <http://nsk.sibnovosti.ru/society/203950-postradavshie-ot-zasuhi-hoz...> (request date 31.10.2013)].

NEGATIVE EFFECT OF LACK OF WATER ON FISHERY RESOURCES

Lack of water has a negative impact on the Ob river ecology. For example, several dozen tones of fish perished in March–April of 2013 as a result of sharp decrease of water level in Ob reservoir storage. In the shallow waters near Novopichugovo settlement 75.8 thousands specimen of perished young fish were found. Mainly they were perch and pike-perch. The damage was equal to 70 million rubles. In the next two years the catch has decreased by 200 tones.

In 2013 as well, a fish fell a victim of the spring: laid spawn and larva dried out in shallow waters. The residents of private homes on Ob shores gathered dead caviar to feed their live stock and poultry.

Spawning season conditions are dramatically deteriorated due to the lack of water in Ob and the water reservoir, and due to drying out of riverside coves. If fish will be laying spawn in the river, than most of it will die. Novosibirsk fishery biologist help to river dwellers – they create artificial spawning sites from spruce garland with assistance of specialists from the Verkhneobsk basin authorities, processing companies, fishermen, and environmental NGOs. Establishing these spawning sites allows producing 150–200 tones of marketable fish. Under conditions of shallow water this job is obligatory; otherwise all fish in Ob may disappear in the coming years. Siberian white salmon, Siberian sturgeon, taimen, sterlet and muksun are already added to the Red Book of the Novosibirsk Oblast (list of endangered species).

The drought leads to extinction of lake fish as well. Its mass extinction was monitored in 2012. Whitefishes were affected most of all. For them the water temperature above +28°C is deathful. Only 22 tons of fish were fished out instead of planned 720 tons. Due to the lack of water the lake fish continued to perish even during winter time. For example, channels connecting Bolshie Chany and Yarkul Lake became significantly shallow and one of them completely dried out. One of the channels was cleared out during preparations to severe winter, and fish was able to enter Yarkul Lake for wintering. The lake froze almost through a bottom, so Malie Chany was desolated during spring of 2013.

During Soviet period in Sartlan lake (the third by size in the Novosibirsk Oblast) peled was fish-farmed on a large scale. However, in the last years its quantity in the water basin of federal status is decreasing. Peled is being replaced by inferior species, such as crucian carp, river perch, and dace. In the Novosibirsk Oblast the fish stock is being replenished in deep lakes that are rich with food supply and suitable for raising marketable fish.

More than 150 lakes have been rented for a period of 10 years already: for example, lake Kankul in Kargatsk raion, Okunevo in Bolotninskiy raion, Pushkary in Chistoozeroe, Sladkoe in Zdvinskiy raion, and many other lakes. Valuable fish species are fish-farmed, such as peled, mirror carp, and common carp. So the weight of peled may grow up to 140–170 g during summer. The target program “State support of fish rearing for sale development in the Novosibirsk Oblast during 2011–2013” is aimed at the replenishing of fish resources. If 2012 was disastrous, then in 2013, which was a high-water year, fish catch was not bad.

Nevertheless the situation with lakes remains a difficult one. Complex measures are taken to preserve valuable fish species and to redound their quantities to fishery level. Thus, aerators to oxygenize the lakes are used where fish kills took place in the Novosibirsk Oblast. Breams are being trapped with a help of trawler fleet. The decrease of redundancy in bream population will enable peled and muksun to find food easier. The fight with poachers, who savagely catch a fish, is underway. And many other activities, aimed at replenishing fish population, are also initiated.

NECESSITY TO RECONCILE THE INTERESTS OF WATER USERS

In Ob river basin the demand of water users exceeds the possible supply of water resource even if flow regulation is taken into account. In the beginning of 2008 precipitation volume was half-sized as compare with the average value in West Siberia. Due to this fact, in May the water-level in Ob was equal to 43% of average rainfall. According to the West Siberian Hydrologic Center such precipitation level was not recorded since 1973. There is a problem of reconciliation of interests between utility providers, those who work on the river, and energy suppliers.

The high priority was given to water supply of Novosibirsk, the city with the population of 1.5 million, and to its satellite town Berdsk. The rest of the issues were resolved whenever possible. The cargo fleet was headed to the North loaded only by half due to the shallow channel, and navigation had ended earlier than usual. In the first quarter of 2008 water deficit resulted in decrease in electricity production by Novosibirsk Hydro Power Station (HPS) by 30%. Planned repair work had to be delayed in order to keep in operation the biggest Novosibirsk Steam Power Plant-5.

In 2011 almost in all regions feeding river Ob the record low water level has been monitored. During warm and dry autumn the precipitation volume in south east of West Siberia was lower than the mean annual rainfall and by the end of September the water levels were at the extreme low-level in many places of Ob. Net inflow volume to Ob water reservoir had decreased due to water depletion. So, in October the inflow volume to Novosibirsk Hydro Power Station site was equal to 57% of norm. This phenomenon never happened over the entire history of the Novosibirsk HPS existence since 1957.

The extreme low water level in Ob basin remained in 2012. In March, the inflow in the area of the water intake facilities (located lower than the Novosibirsk HPS site) was less than the volume of water intake for the needs of Novosibirsk. As a result of Ob water content depletion the decrease in Novosibirsk HPS power production by 3–10% from design level is anticipated. The situation at the HPS may become critical in case of lengthy low water period within the limits of water intake facilities at the water reservoir. [Profiriev B.N. *Priroda i ekonomika: riski vzaimodeistviya / Ekologo-ekonomicheskie ocherki* (Nature and economics: counterparty risks. Ecology and economics notes) in Russian / edited by Academician of RAS Ivanter V.V. – Moscow: “Ankil”, 2011, 351 p.].

In summer of 2013, a tense situation between Novosibirsk HPS directorate and project developer “Ekln” (“Kvarsys” group of companies) had arisen. The project developer launched earthworks in order to begin the construction of multifamily housing on the lot tightly adjacent to the right-bank earth embankment of Novosibirsk HPS. This embankment is a part of the water front of waterworks facility and it is necessary for normal operation of the whole construction. A collecting drain which carries filtration water off embankment was built opencut across the development area.

According to HPS specialists’ research subsurface parts of the apartment building under construction will create obstacles for underground filtration flow, thus ground water level in the earth embankment will rise and it will be flooded. Head office of Novosibirsk HPS demanded the project developer to stop the construction of apartment building in water protection area and reconstruct the original land configuration of the site, since this activity puts at threat the safety of HPS operation.

Increase of water course instability, landslides and other negative events might occur due to the misuse of lands located within water protection areas and coastal buffer zones. Unfortunately, the new Water Code of Russian Federation lowered the level of defense: the number of water protection areas was diminished, i.e. territories adjoined to surface area of body of water, where special conservancy mode was set. In previous years the

minimum size of water protection area along Ob was set up to 4km, but according to the new norm – up to 200m. Physiographic features of the region are not taken into account: during high-water period overflow land is flooded at the distance many times as great as established norm.

The easing of standards also occurred in the sphere of utilization of water bodies by private and juridic persons. Earlier version of regulations regarding water protection areas was much stricter and did not allow construction works within 200 meters of sanitary zone. At present new regulations allow construction works in close vicinity to water where there are pollution control facilities 20-meter areas of public service. Moreover, the new Water Code provides for possible rent of shore line to build an elite housing with personal wharves, boats, etc. (provided that waste treatment facilities are present at the site).

Interagency task force, which included representatives of government authorities and businesses was organized for online regulation of the water reservoirs and for the congruence of interests between all water users with due regard to environmental requirements made by Federal Agency for Water Resources.

Serious problems occur not only in draught years, but in high-water years as well, prompting state authorities to take adequate measures. The winter of 2010–2011 was snowy (precipitation level was around 128 mm.). But the winter of 2012–2013 pretend to be in top of the snowiest winters in the last century. In a period from November to January 137% of the standard norm of precipitation fell out. Snowfalls became a major cause of traffic jams, although the situation was worsened by the increase of new automobiles (27.5 thousands in Novosibirsk within a year, and up to 1 million units in the Novosibirsk Oblast). In Novosibirsk the highest road congestion was monitored in November and December. Snow was piled along roadsides, thus making roads tighter for 1.5–2 lanes and decreasing their capacity. Novosibirsk municipal administration set new rules for municipal improvement and city cleaning enabling to conduct snow removal (not only on the roads, but in neighborhood areas as well) in timely manner in order to improve work of the road and transportation complex.

The first snowmelting station, which started its operation in December 2013, will enable to close snow accumulation sites in the city center and to utilize snow, collected in the city. Canadian equipment processes 180 cubic meters of snow per hour, and during double-shift work – more than 3 thousand cubic meters per 24 hours. The station operation is more expensive then snow accumulation but it promotes environment protection: during utilization snow is being cleaned and only afterwards it is poured down into the river. And the sand, which was spilled on the roads, is getting recycled.

The mayor office invested 30–35 million rubles into preparation of the ground, electricity provisioning and gasification of the new station. The private investor spent 40 million rubles for procurement and installation of the Canadian equipment. The payback time of the snow melting station is 5–7 years. In the next 3 years 4 new snow melting station are planned to be constructed. This will allow abandoning the practice of the snow accumulation sites in the future. It is expected that in winter with average level of precipitations the stations will provide 80% of total city demand for snow utilization.

In the summer of 2013 streets of Novosibirsk have been flooded even after short rainfalls more than once. Rainwater or melt water, while accumulating in the ground, destroys constructions, reduces house footing durability, floods basements, cellars and other facilities, as well as garden patches. Water drain and storm sewer systems should help in removing water surplus. The most part of the storm sewer systems was projected and built in 1960s, and since then no repair works were done. But at the same time a workload on these systems was growing as new residential areas appeared.

Today, according to available estimations, just 40% of street and road network is provided with storm sewer systems, and trunk road system – by 90% and more. In a number of city districts floods happened due to the fact that half of monthly norm of precipitation fell during short time period. Storm sewer systems located in courtyard areas not always were capable to remove such volume of water because these systems either were worn out or clogged. Huge water pools caused traffic jams many kilometers long and road traffic incidents.

Cleaning of storm sewer system is a costly affair. In some cases it is cheaper to replace clogged part of a sewer than to scour it out. Pipeline diameter is also important factor. Sometimes it is not big enough to drain off water. In such cases pipes of a larger diameter should be installed. In 2012 “Gormost” put on the books 50 km of abandoned storm sewer system, scoured them out and constructed additional drain-water inlets. It allows for water, coming from block courtyards, to be channeled directly in the yards.

Fulfillment of the target program “Modernization and development of storm sewer system of the city of Novosibirsk in 2013–2025” (Regulation N 2670, dated 22 March 2013) will help to improve citizen’s living conditions. It is planned to direct more than 170 million rubles for this program implementation. More than 5,000 kilometers of storm sewers will be produced, 300 new rainwater inlets will be installed and 150 inlet wells will be repaired.

Let us look at other important issues connected with water factor. Their urgency grows or lessens depending on low-water or high-water years (periods).

DETERIORATION OF WATER RESOURCES QUALITY

Business activities not only reduce the size of river runoff but also deteriorate a quality of water. In recent years the volume of water taken in from water sources of the Novosibirsk Oblast for needs of social and economic development decreased by 8%. If in 2007 it equaled to 768 million cubic meters, then in 2012 only 706 million cubic meters of water resources were taken in. The dirty discharge increased by 9.8%, from 101.47 to 112.53 million cubic meters, during this period. In 2012 the following agents were traced in surface water bodies: suspended substances – 4.82 thousand tons, dried residues – 83.79 thousand tons, sulfate anion – 9.01 thousand tones, chlorides – 11,73 thousand tones, ammonium nitrogen – 517.31 tones, nitrate anion – 18,601.54 tones, zinc – 5.77 tones, aluminum – 11.59 tones. [Okhrana okruzhayushchei sredy v Novosibirskoi oblasti. Statisticheskii sbornik (Environment protection in Novosibirsk oblast. Statistics digest) / Novosibirskstat. – Novosibirsk, 2012. – p. 94 (in Russian)] It should be noted, that comparatively low water temperature in rivers and water bodies weakens their self-purification capacity.

Water resources condition is influenced by wearing away of river banks as a result of their underwater parts erosion (mainly resulting in exclusion of agricultural lands and residential areas from economic turnover) and accumulation of polluting substances in bottom deposits. The problem of silting-up of Ob water reservoir and reduction of its effective capacity due to the banks caving is a pressing one and requires solution. The reservoir water-front is 500km long. Around 50% of the waterline is being eroded. Two socially important projects of coast-protection structures construction on the right bank of water reservoir (in Iskitim district of Novosibirsk Oblast) were developed as part of target federal program “Development of water resources utilization system of Russia in 2012–2020”. For the first time in the last 20 years large bank protection facilities will be build in Bystrovka and Sosnovka settlements by 2015. Their construction costs will be over 300 mil-

lion rubles. According to experts this will prevent the damage of 1.4 billion rubles which can be caused by loss of land and woods, the water reservoir silting and negative ecologic consequences as the result of water body banks erosion in thickly settled coastal area.

LOW QUALITY OF DRINKING WATER

River flow and underground waters are the main sources of drinking water supply. Water supply of large cities (Novosibirsk, Berdsk, and others) with no sufficiently protected reserved sources of water supply is developed on surface sources. The quality of surface water is unsatisfactory. Since it is polluted, water taken out of the Ob River requires preliminary integrated water treatment and disinfection.

Now the most part of the Novosibirsk oblast have to use water inconsistent by several criteria with hygiene requirements. The deficit (and sometimes the lack) of water treatment facilities together with inefficient water treatment technology do not allow to ensure compliance of water quality with regulatory requirements thus creating a serious threat to public health. The enterprises which bottle drinking water in Novosibirsk slightly reduce the urgency of the problem.

For a number of years Novosibirsk regional authorities attempt to solve the problem of drinking water quality. The program “Provision of the population of Novosibirsk Oblast with drinking water in 2000–2010” was developed and approved in the beginning of 1999. During the program development the quality of water in the oblast districts was taken into consideration. According to water quality the necessary modular cleansing systems were selected for each settlement. It was planned to provide each resident with 5 liters of drinking water per 24 hours due to the high cost of water treatment.

Just a downsized version of the program was actually implemented – regional program “Provision of Novosibirsk oblast population with drinking water in 2008–2012”. Activities aimed at water quality improvement were downsized, and main efforts were concentrated on drilling new wells and pipelining. The issue of water quality was not cardinally resolved due to either the shortage of capacities for water treatment or lack of such stations in small settlements.

Today the majority of the Novosibirsk Oblast residents drink water hazardous to their health. Among 30 districts only in one, Iskitim district, quality criteria of underground drinking water were estimated to be safe. In 23 districts underground sources of drinking water contain elevated concentrations of mineral salts and metal ions. The underground waters requiring purification are located in the following territories: Ust Tarka, Chany, Vengero, Chistoozersk, Karasuk, Kupinsk and Kuibyshev districtss. [Kronikh G. Zhiteli piyut opasnuyu vodu (Residents drink dangerous water) in Russian. / URL: <http://www.nsk.aif.ru/society/article/30055> last accessed date 02.03.2013)].

In 2013 the financing of the program “Clear Water”, which provide the development and reconstruction of water supply and water disposal systems in municipalities, was downsized due to the budget deficit (14.9% of its own revenue) in 13 districts of the Novosibirsk Oblast. The situation worsened because not all districts prepared design-cost documents in order to receive budget support. After setting up priorities – calculations come first, then – money the regional government found an opportunity to implement the social important program at the expense of several funding sources.

The amendments to the budget for increase in appropriations enabled the districts to receive necessary amount of financing. The issue of settlement’s water supply is a priority. “Clear water” program costs for 2014, 2015, and 2016 will be correspondingly 382, 90.8

and 200.7 million rubles. The program is developed on the basis of the requests and projects provided by municipalities.

Novosibirsk and Berdsk citizens are provided with good quality water from the Ob River. In Novosibirsk water supply is provided by five pumping and filtering stations of “Gorvodokanal”. Processing and disinfection of drinking water is based on the classic technological schema. It should be noted that chloride content standard in Russian drinking water is 2.5 times higher than in USA, and 12 times higher than in West Europe. During chemical treatment chloroorganics are formed in the water and many of them are deemed to be cancerogenic. For example, specialists from American oncological institute and Finnish scientists concluded that 2% of liver and kidneys cancer occurs “thanks to” chloroform. Solution in this case can be seen in refusal to use chlorinated water and in switching to other types of its processing. Novosibirsk “Gorvodokanal” gradually reduces volumes of chlorine used during water processing. In two out of five pumping and filtering stations ultraviolet drinking water disinfection units are already operating.

THE OB BASIN IS THE LARGEST FOCUS OF OPISTHORCHIASIS IN RUSSIA AND IN THE WORLD

According to World Health Organization, one third of infectious, noncontagious and parasitic diseases among population are connected with water factor. Microbiological contamination of water (bacteria, viruses, parasites) leads to fish contamination. Ob basin is characterized by extremely high level of infection of West Siberian residents and approximately 30 types of wild animals. Almost all population in small settlements, located along river basins, is infected with opisthorchiasis (the fish there is the main food). According to research of the Institute of Medical Parasitology and Tropical Medicine of E.I. Martsinovskiy, at the end of 1970s 4.4% of the population was infected with opisthorchosis. Today infection rate among residents of the Middle Ob basin is dangerously high, it reaches 51-82%, and in some districts it exceeds 90%.

Epidemiological situation with opisthorchosis in the Novosibirsk Oblast is not improving, despite of the work conducted by parasitologists and other kind of doctors and preventive measures taken for a number of years. If average national level of incidence is 28–30 infected persons per 100 thousand residents, then at the north of the Novosibirsk Oblast it equals to 800–900 infected persons per 100 thousand residents.

HAZARD OF HOUSEHOLD MERCURY CONTAMINATION OF WATER IN OB RIVER

As consistent with the Energy Saving Law in 2014 Russian citizens should switch to using energy saving bulbs which contain mercury. According to the existing estimates the Novosibirsk residents purchase annually 10kg of mercury in the form of these bulbs. In 2014 these purchase volumes might grow up to 50–100kg. It is quite possible that ultimately mercury will enter the Ob River, and then – in fish. It is known that mercury concentration in fish is 100 times higher than in the water this fish lives in. Mercury which contaminates human organism through fish and which accumulates there causes severe damage: liver and gall bladder are diseased, proneness to tuberculosis, atherosclerotic vascular disease, and hypertonia occurs, central nervous system is also damaged.

Mercury bulbs disposal is prohibited at general purpose polygons. And the problem of their disposal remains urgent. The working conditions of Novosibirsk companies specializ-

ing in recycling mercury-containing bulbs do not stimulate residents to return waste lamps to them. For example, there are companies which accept waste bulbs only in packets (50 units each), and sum of money to be paid for each lamp is quite significant for majority of city residents. It is easier for people just to throw these bulbs in garbage disposer, from where the bulbs will be transported to area landfill, and from there – into ground and underground waters. The disinfection of underground waters is a costly process.

A movable station of mercury containing wastes “Ekomobil” started to operate in Novosibirsk as part of the target program “Development of production and consumption waste management system in the Novosibirsk Oblast in 2012–2016”. Two cars were able to collect around 300 mercury bulbs, as well as accumulators and batteries. Three more ecomobiles were also purchased for the city on budget funds. This will allow city residents to bring mercury bulbs, thermometers and other gadgets, equipment and devices containing mercury which lost consumer attributes, return for utilization near their houses (without throwing them into garbage disposal containers) on regular basis and free of charge.

The investors do not go into garbage recycling sphere because it is characterized by high capital intensity and long payback periods of projects (construction of concrete storages for mercury waste). Allocation of budget funds will be required. The problem of energy efficiency by means of switching to mercury bulbs should be solved simultaneously with the problem of their disposal. [Paschenko S. Rtut’ v okeane. Nashi reki stanut prichinoi mezhdunarodnogo skandala? (Mercury in the ocean. Will our rivers cause an international scandal? / Argumenty i facty. June 6, 2012 (in Russian)].

Under the influence of natural and climatic factors and anthropogenic activities the urgency of water economic issues remains. And in some cases it constantly grows despite undertaken efforts towards their solution. Development and implementation of complex measures aimed at preservation of natural environment and water supply for social and economic development of the Novosibirsk Oblast is necessary in long-term perspective.

STRATEGIES OF COAL BUSINESS DEVELOPMENT AND ECONOMIC SECURITY OF KUZBASS

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The coal industry of Kuzbass is the main driver of its economic development: it fills the regional budget (about one third of all payments in the consolidated budget of the region); it creates jobs (approximately 10% of the regional employment); it stimulates the development of infrastructure industries and steadily is the “center of gravity” of investment (almost half of the investment in fixed capital region; in 2013 about 65 billion rubles were invested in the modernization of Kuzbass coal industry). The growth dynamics of Kuzbass gross regional product (GRP) also demonstrates its high dependence on the coal production in the region.

At the same time, experts estimate the role of the coal business in the future quite ambiguously. Below is an attempt to describe the basic strategies of the coal business development.

STRATEGY OF TRADITIONAL DOMESTIC MARKET GROWTH

Domestic demand usually plays the role of a driver in a national economy. But in Russia the increase of demand particularly for power plant coal is unlike because of the progressively increasing production of natural gas. Since the beginning of 1990s the country has witnessed a steady decline in the demand for coal in the main segments of the domestic market. Over 20 years coal consumption decreased in metallurgy – by almost 1.5 times, in electric-power industry – by 1.4 times, housing and communal sector and the agricultural sector – by 1.6 times. In the Russian energy balance during the same period the share of coal decreased by 2%⁴.

However, the government set up a target to increase the consumption of coal in the domestic market in Russia by 0.8% annually through the development of coal generation in the future⁵. By 2030 the country plans to enter about 26 GW of additional generating capacity based on coal. And although the strategic documents relating to the prospects of

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⁴ Novak A. Reference points ambitious enough // Coal Kuzbass. – January–February 2013. P.7.

⁵ Shmatko S.I. About the resume of restructuring and development prospects of the coal industry // Materials of the meeting at Prime Minister Vladimir Putin on the development of the coal industry (January 24, 2012, Kemerovo); Long-term program of development of coal industry of Russia for the period up to 2030. – URL: http://www.rosugol.ru/upload/pdf/project_dp.pdf

Russian electric-power industry declare a gradual decline in gas consumption, with increased volumes of coal consumption in power plants, but in practice, is bucking the trend. In our view, there is no reason to expect to perform voiced above forecasts. Most of the new projects in the generation associated with the gas consumption. The largest Russian gas companies increasingly claim plans to increase gas supplies to the domestic market. Besides the “big electric-power industry” and housing and communal sector are discussed (and already are realized) gasification projects transport.

Commercial investors' interest in the development of coal generation occurs only when you three-fold increase in gas prices in the domestic market (this figure may be different by regions depending upon a number factors) according to expert estimates. But now the slowdown in growth in domestic prices for natural gas is actively discussed.

There are several possible scenarios of generation market development, but they ultimately will not lead to increased consumption of thermal coal in Russia. On top of everything else, a considerable part of the domestic market (housing and communal services, state agencies) is some kind of a “black hole” for the coal companies: they get payment for the products they supply a long time afterwards. As a result the debt burden of companies is billions of rubles. Many Russian regions set up the upper limits of coal prices for housing and communal sector and for the population.

Domestic coking coal market is limited in Russia, and its main actors are included in the major steel holdings, whose activities, including plans for the development of production, depends on the situation on the domestic and foreign markets steel products. The import of coal – especially coking coal – is growing in Russia (in 2011 imported 2.6 million tons against 175 thousand tons in 2000¹).

STRATEGIES FOR THE DEPLOYMENT OF COAL EXPORTS

Given the situation in the domestic coal market, where unlikely in the near future there will be major structural changes, which will lead to increased demand for this type of fuel, as well as the impossibility in the coming years to achieve the desired results in innovative industries, export of coal from Kuzbass is the only way of survival and development of the coal companies and the region as a whole.

Almost 100% of the addition coal production in the Kuzbass is the potential for coal export, and reduction in coal exports are decline of coal production, as a result, reducing economic security (Figure 1). In this connection it is extremely important to create *the right strategy exports*, considering the main threats related to the sharp change in the trend of the global economy, global energy and formation of a new configuration of the major coal markets.

For compression the domestic market and increase exports significantly increases the risk of the coal business in Kuzbass. If the price of Russian power plant coal, which provides economic efficiency of delivery (FOB ports of the Far East) is around \$90/t, then analogous indicator for Australia – \$45/t².

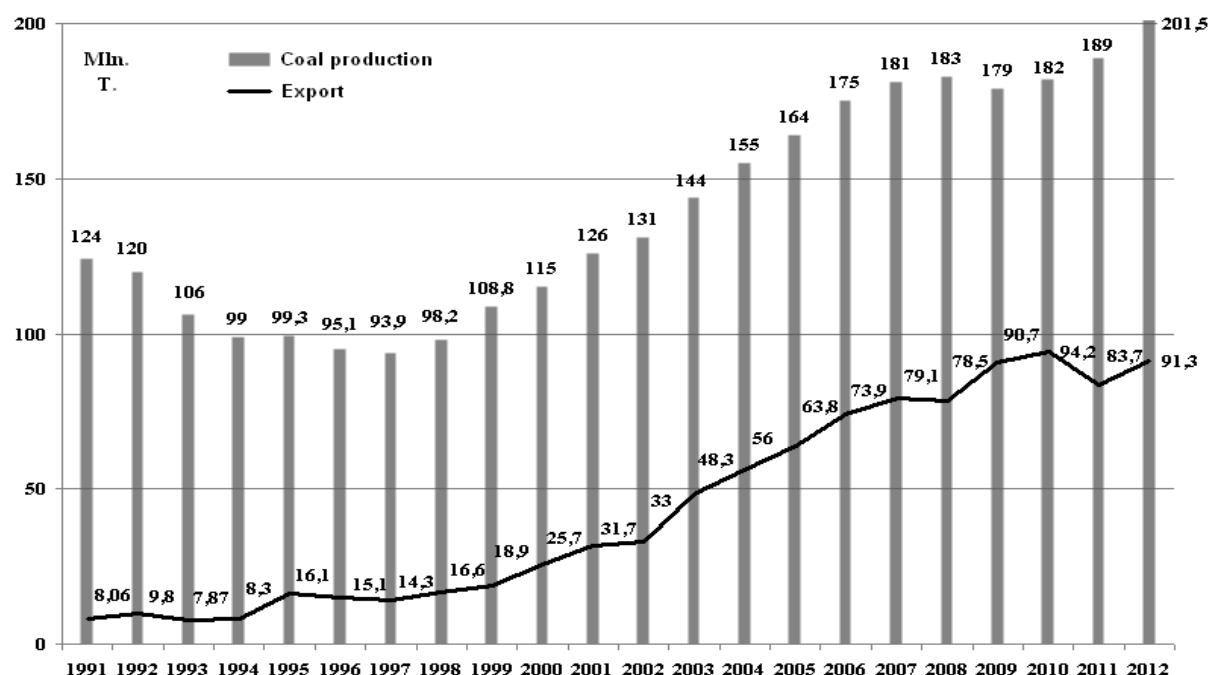
Over the past five years the cost of production per ton of coal in the Kuzbass increased by 2.5 times (2012 – 1411.56 rub/Ton), and the selling price – 2.2 times. So many Kuzbass coal companies have at best zero cost-effectiveness, but do not reduce exports in anticipation of market recovery.

¹ Analytical review “Russian coal market in 2012.” RBC. – M., 2012. P. 54.

² Records coal production and export in Russia should not be misleading (press release of the Institute of Natural Monopolies, 12.12.2012). – URL: <http://www.delkuz.ru/content/view/16580/1/>

Kemerovo Region Governor Aman Tuleev – speaking November 20, 2013 with the budget message for 2014 and the planning period 2015–2016 – noted that during 2014 the Kuzbass miners will extract at least 200 million tons of coal. While coal miners will have to make every effort to keep its export position, as exports as a key factor in the growth of the industry. Meanwhile the head of the region drew attention to sell the Kuznetsk coal in world markets, it is necessary to increase value added¹.

First of all, we are talking about the development enrichment facilities. Over the past 10 years 19 enrichment plants and concentrators were put into operation in Kuzbass. As a result, while in 2003 the region was enriched 41.5% of the coal, in 2013 – almost 72%².



Source: Kemerovostat and Customs Statistics.

Fig. 1. Dynamic of coal production and coal export from Kuzbass in 1991–2012, mln t.

Over 15 years 507 billion rubles were invested in the Kuzbass coal industry, 74 new high-mining and coal processing were built³. The world's best technologies and equipment both in production and in the enrichment are used at new enterprises in the Kemerovo region now. Moreover, in some cases, the original (having no world analogues) enrichment technology is used there today. With rare exceptions, all the profits coal mining companies operating in the Kemerovo region invest in their own development, and “debt / EBITDA” in the best companies is 3–4, and some reaches 9. According to our estimates, \$10–12 is invested per one ton of coal mined in Kuzbass now. However, it is necessary to invest more than 2–3 times in order to compete in the first place in the world markets. Still not enough investment – compared to the world level – goes to the environment, security, logistics.

In our opinion, the current model of the coal business, forced to become export-oriented is only a reflection of the situation on the domestic market, and the result of natural processes of integration of Kuzbass into the world economy.

¹ Governor Aman Tuleyev: “Economize on people we do not” 20.11.2013. – URL: <http://kemoblast.ru/news/2013/11/20/gubernator-a-g-tuleev-ekonomit-na-lyudyah-my-ne-budem.html>

² In the same place.

³ Ivanter A., Popov A. President of the miner Republic // *Expert*. – 2013. № 46 (876).

It is difficult to explain the phenomenon of export of Kuzbass coal because of the following facts:

- the region is geographically disadvantaged against major world coal markets, at a distance of 4-6 thousand miles to the sea ports that must be overcome by railway (it is 12 times larger than that of its main competitors from Australia and Indonesia);
- much more difficult conditions of coal mining in Kuzbass, no fields that can be developed using cyclic-flow technology;
- high costs of exploration and development of coal deposits due to low quality “pre-licensing” exploratory drilling;
- coal business has little influence on Russian exports (less than 2% of total export) and does not affect beneficial currency rate for coal export;
- low share of foreign capital in Kuzbass coal business. Only two coal companies (“Raspadskaya” and “Kuzbass Fuel Company”) conducted IPO over the past five years;
- no system of protection in Russia (tax incentives, soft loans, subsidies to producers, in addressing infrastructure issues¹);
- labor is becoming more expensive in the region constantly.

All the above factors extenuated by prices in the context of high world prices for coal. But the situation has changed in the markets in non-stop mode now. Problems of Kuzbass coal industry are progressively exacerbated because of the reduction of coal cost due to the increase of its supply on the world market.

For example, in the United States cheap shale gas² displaces coal which is exported. According to some estimates in 2012 coal exports from the USA to Europe grew by 23% – to 66.4 million tons and almost all addition went to coal generation.

Several new factors – besides shale gas – can affect to world energy markets in the long term of 10–15 years. In the first place, we can note the *discovery of natural gas reserves in Israel and Cyprus*. On the one hand, it's reduce the dependence of these countries on imported fuel, on the other, it's may allow them to become serious by the suppliers of gas to the European market. We recall Israel is quite noticeable consumer of coal – its consumption for electricity production reaches 12–15 million tons per year. Release even half the today level of coal is very significant impact on the markets of high-energy power plant coal.

It is impossible not to note the efforts of Japanese companies for the extraction of methane hydrates (methane compound with water, one of the most common types of gas hydrates). The beginning of their production the industrial scale will be comparable to the “shale gas revolution” in the US.

Coal will firmly hold important place in the fuel balance in most developed countries due to high stocks and relatively low cost production, despite the emergence of new production technologies and new energy sources.

The coal industry has already demonstrated its ability to adapt to restrictions similar to those set by the Kyoto Protocol – combustion technologies are becoming clearer, so the demand for coal is growing faster than alternative fuels in the world in recent years. Coal

¹ In order to promote Russian export there are reducing indexes to railway tariffs for the coal transportation, including system of reducing indexes for transportation of coal for export through Russian ports (Arkhangelsk, Kandalaksha, Murmansk, Vanino, Posiet, Nakhodka, Vostochny) and border-crossings at a distance more than 3500 km. However there are all reasons to believe that this “protectionist” measure will soon be canceled.

² The US shale gas production in 2000–2012 increased from 11 billion m³ to 200 billion m³. As a result the US market originated excess gas, which led to a drop in domestic prices to \$450 per 1000 m³ in the summer of 2008 to \$120–130 in early 2013. (What is the “shale revolution” // Kommersant-Vlast. 2013. № 15). As it is projected that by 2040, US shale gas production could rise to 485 billion m³. According to experts, about 30% of the needs of the US market today covered by shale gas. (Gas for future generations // Kommersant–St.Petersburg. “Energy. Oil. Gas”. Application, №79. 14.05.2013).

is the main fuel for electricity generation in the United States, Germany, China, India, South Africa, Australia, most countries in Central Europe. Many experts are sure that coal would be preferable to gas and energy sources exchange in the world market is primarily associated with the new technology of coal combustion, are not detrimental to ecology¹.

World coal production increased by more than 70% during the last ten years and in 2012 amounted to 7.7 billion tons. About 15% of the world's coal is supplied on the global markets today.

Almost half of world coal production (2012)² is accounted for by China (3.52 billion tons). The second leading producer of coal is USA (about 1 billion tons). The third leader is India (a little more than 500 million tons).

Regional structure of coal consumption in 2012 is as follows: the Asia-Pacific region – 69.8%, North America – 12.6%, Europe and Eurasia – 11.4%, Africa – 2.6%, Russia – 2.5%, Latin America – 0.8%, Middle East – 0.3%³. The electricity generation is the most of the coal consumer.

World coal market is sufficiently competitive; many countries are engaged in the coal export. However, the main contribution to the global coal export and the formation of world coal prices makes the five countries, which account for 70–80% of coal export: Australia, Indonesia, Russia, China and South Africa.

The two segments of the world coal market – Asia-Pacific, Europe and Eurasia – are greatest interest for the Kuzbass coal exporters (it's dominant in the supply of Kuzbass, primarily power plant coal). According to Russian experts, shipments of these markets will be equal in the long term till 2030. Kuzbass the share of in Russian export is about 80% today and will remain at the same level 10–15 years in the future.

In this context, Russian (Kuzbass) coal companies have no other way for to reduce their own costs, improve product quality. But without government interference is impossible to create a full-fledged export-oriented model, consequently, there is a danger that the coal industry will reduce its participation in the innovative development of the regional economy and from the driver of growth becomes to “supplier problems”.

In fairness, we note that the regional authorities are well aware of the situation, and “Strategy for attracting investment in the Kemerovo region for the period up to 2030” (adop-ted in Jan 2013) provides for measures to 16 destinations – including support for access to foreign markets and export, increasing the availability of energy infrastructure, improvement of customs administration.

THE STRATEGY OF NEW MARKETS DEVELOPMENT

Regional power and a sufficiently large group of experts decide that there are the critical mass conditions and the factors contributing to the success of projects coal-chemical directivity in the Kemerovo region. It means reading to create of new coal market at the moment.

We want to remind that coal deep processing technology can be roughly grouped into three main groups: adaptive technology (to improve of product quality); diversification technology (to create of products with new consumer properties); transforming technology (to create of non-fuel appointment products from coal and waste).

¹ Analytical review “Russian coal market in 2012.” RBC. – M., 2012. – P. 16.

² BP Statistical Review of World Energy 2013. P. 32.

³ BP Statistical Review of World Energy 2013. P. 33.

Both Kuzbass coal domestic market supply and its export are connected with only one of the three possible patterns of coal processing today, namely, using the adaptive technologies providing maximum satisfaction of the increasing demands of traditional customers (steam-electric stations, metallurgy, housing and communal services, etc.) by improving the quality parameters of the coal produced. Adaptive technologies improve the coal quality to such extent that it allows coal companies to obtain the maximum margin in the domestic market and to compete in world coal markets.

The second and the third patterns of coal processing, namely, diversification and transforming technologies are used as the technological basis for the organization of large perspective complexes in the Kemerovo region:

- Power Technological Complex “Karakansky” – electric power generation at the small power generation objects, the production of char and termokoks, the production of construction materials from coal refuse, as well as chemical products production (phenol, benzene, cresol);
- Power Technological Complex “Seraphimovsky” – deep processing of coal and the production of motor fuel (up to high-octane gasoline), gases and other chemical products, the production of building materials from coal refuse;
- Power Technological Complex “Mencherepsky” – the creation of a closed technological complex including “the production coal – coal deep processing – the electric power generation”, the construction of a coal-chemical plant for the production of methanol, benzene, dimethyl alcohol pitches and synthetic motor fuel, the production of construction materials from coal refuse;
- technological complex with underground coal gasification (in the fields of mine “Long Mountain”) – the production of heat and electricity by underground coal gasification in situ and the production of synthetic gas. Some part of the produced synthetic gas will be passed in the process flow to the electrical power station; some part will be used for the production of chemical intermediates (paraffin, ammonia, acetic acid, olefins) and products (gasoline)¹.

The realization of these projects will require considerable resources (cumulative investment for realized the four named projects is estimated at 148.5 billion rubles in the period up to 2020²) however main problems are not the financial ones. They are as follows:

- the availability of economically and environmentally acceptable industrial technologies;
- the readiness of business to implement these projects;
- the readiness of the market “to accept” these products.

There is no doubt that “transformative” and “diversification” coal monetization technologies will dominate in the long term. The economic and technological conditions for the creation of coal-chemical complexes for the production of synthetic liquid fuels (SLF) and polymeric materials are likely to be created in the future 30 years. However, the largest coal-mining countries such as China and the US make only the first steps in this direction and develop these technologies within the frames of energy supply and economic security programs.

¹ Program development of innovative territorial cluster “Integrated processing of coal and industrial waste” in the Kemerovo region (summary). – URL: <http://cdrom01.economy.gov.ru/Innovations/Комплексная%20переработка%20угля%20и%20техногенных%20отходов%20в%20Кемеровской%20области/index.html>

² In the same place.



CONCLUSIONS

In conclusion we remark that some authors are deeply mistaken those who think that the Kuzbass “is aimed at resource-based economy” and can not compete effectively in the global coal markets¹. Kuzbass coal business is a powerful driver of innovation development in the region – the coal business incomes are invested in the creation of new innovative industries and products; the coal industry itself is the largest consumer innovation in the Kuzbass region.

The Kuzbass model development of the coal industry (was created in the years of 2000–2009) allowed to strengthen role of the region in addressing the Russian economic security and to conquer new markets for coal products. However, there is requirement of new approaches to the development of the coal business and new growth points, new drivers of innovation development now. And very important to accent – known the role of global markets to the regional economy – it is necessary to create a system of institutions that implement this strategy, both at the federal and regional level. And the coal-chemistry direction of the innovative development in regional economy should be seen rather as one of the variants of perspective development of the coal business but not like a panacea.

¹ Urban O.A. Subjects of modernization and innovative development in the Kuzbass // ECO, 2013. № 4; Markova V.M.; Churashov V.N. Will stand whether the russian coal in competition with the world shale gas // ECO, 2013. № 9.

KEY CONCEPTS OF REGIONAL POLICY: CHARACTERISTIC FEATURES OF ITS REALISATION IN AGRO-INDUSTRIAL REGIONS

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The article reveals the basic items of key concepts of regional policy formed by the Ministry of Regional Development in different years. The article involves the comparative analysis of concepts. In the article parallels between classical theories of cumulative growth and modern concepts used in Russia are drawn. In the article overall view of regulation directions of the development of regions specialized on agricultural and industrial complexes are shown.

It is widely known that core documentation in the sphere of regional policy was first attempted to be formed in the early 90ies and this work has been actively performed since then. In 1993 the Analytical Center controlled by the RF President developed “The Strategy of Regional Development of the Russian Federation”, whereas in 1994 “The Assistance Program of At-Risk Regions” was adopted. In the period of 1993–1995 several regional development programs were put forward, with their initiators being the Ministry of Regional Policy and Nationality Issues, the Ministry of Economic Affairs (economic aspects), the parliamentary group “New Regional Policy” and even Russian Geographic Society. Two projects related to Russian regional policy were being carried out in the framework of TESIS program (1998 and 2000) with the assistance of foreign experts. However, at the present day there is no comprehensive and generally accepted policy of regional development and, consequently there are no effective laws in this sphere.

The need for the Strategy of RF Spatial Development was pointed out by the authors of the closing report about the results of an expert work over the topical problems of social and economic strategy of Russia for the period up to the year 2020 [1, p. 327]. The leading scientists, experts in regional issues, conclude that frequent changes in the concepts of Regional Management constituting the base of the regional policy in recent years, can be traced to the search of ready-made solutions borrowed from Western countries. In their opinion, such unreasoned adoptions can result in the eclecticism and uncritical perception of regionally-specific historical, geographical and economic environments. For example, the policy of “equalization” was replaced by the concept of “regions – driving forces of development”, to be followed by the concept of “priority growth zones” with the final “cluster” concept. It is important to mention that every “innovative” concept having been put forward was declared a panacea not only by the officials but by the experts as well, whereas its developers were claimed messiahs at the least [2, p. 9].

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The current situation brings worries to both scientists and practitioners. Alexander Chloponin, the leader of the RF State Council working group having dealt with the overall social and economic regional planning development in the mid-2000, confesses that “current regional policy is not a well-thought product, but an accidental sum of territorial consequences, a by-product of the realization of the other-sector governmental and business-driven strategies and plans” [3, p. 48]. The similar opinion was expressed by the Minister of Economic Development of the Russian Federation E.S. Nabiullina [4]. In her speech at the session of Public Chamber of the Russian Federation in July 2008, she pointed to the need for the development of “comprehensive regional policy”. It is worth mentioning that the situation has not changed much since then.

The Ministry of Regional Development came up with two documents dealing with the prospects of Spatial Development of Russia. One of them was given the name of “The Concept of the Strategy of Social and Economic Development of RF Regions” (2003); whereas another one is called “The Concept of RF Regional Policy Improvement” (2008). To state the purpose and the key issues of these documents, we need to carry out their detailed examination, which is going to be done further on.

The Concept of the Strategy of Social and Economic Development of RF Regions. This Concept advances the following aims of regional policy in the Russian Federation:

- to secure a global competitiveness of Russia and its regions;
- to stimulate the process of new “regionalization” which is a consolidation of regional resources to boost the economic growth and the change in the structure of the economy;
- to develop the so-called human capital together with the increase of spatial and skill mobility of the population;
- to improve the ecological situation if the regions of the Russian Federation in order to provide for the balanced economic growth;
- to increase the quality of management and the use of public finance in the sub-federal level [5, p. 31–32].

It is important to note that regional policy of the EU countries has always been oriented to the equalization and boosting the economic growth of the regions at risk. However, the draft of this Concept hardly ever contains any orientation to minimize the differences in the levels of social and economic development of the regions.

Dr. S.S. Artobolevsky (PhD in geography) – one of the leading economists, an outstanding expert in the sphere of regional studies, was the one advancing the idea of equalization of regional social and economic development levels. In his opinion, the fact that there is no directive to equalize the inter-regional differences de facto means the absence of regional policy at all [6, p. 23–25].

At the same time, Russian science can boast other approaches to the equalization of inter-regional economic and social differences. Thus, Dr. N.V. Zubarevich (PhD in geography) considers that the fundamental cause of those regional economic differences is the accumulation of economic activity in the places advantageous for businesses. This enables businesses to decrease costs, and consequently, economic equalization does not have any objective base therein. Unlike economic equalization, the social one is possible, but judging by the experience of developed European countries this can happen due to the effective social policy only, whereas the regional policy does not prove any efficiency in this case [7, p. 63].

Unlike regional policy, developed for the Russian Federation in the late 90ies of the 20th century by the experts of the European Community [8], the Concept of the Strategy of Social and Economic Development of the RF Regions made provisions for the following:

- creating the regions – the so-called “growth driving forces”, key regions generating innovative and investment impact onto the rest of the territory of the country;
- in the part of administrative and territorial division of the country it was recommended to extend the jurisdiction to reveal the system of “key regions” inside the country, to recognize their extended status different from that of the usual administrative territorial bodies;
- in the part of basic management mechanism it was recommended to direct state capital investments into the growth of cohesion of the key regions and a global economy and the other regions of the country, to eliminate barriers preventing the spread of innovations.

The territories having failed to get the status of the key region are given state support which is directed primarily to provide an equal access of the people living in this region to the services guaranteed by the RF Constitution.

Table 1 presents fundamental differences between the concepts relying on the policy of regions equalization and the ones advancing their polarized (focused) development [5, p. 26].

Table 1

Comparative analysis of regional policy concepts based on different models of their development

State policy	The policy of regions' equalization	Polarized (focused) development of the regions
Basic parameters	Discriminating between the regions on the basis of their averaged (balanced) social and economic potential.	Creating the regions – the so-called “growth driving forces”, key regions generating innovative and investment impact onto the rest of the territory of the country.
Administrative and territorial division	Discriminating between the territories on the basis of the existing administrative and territorial structure being preserved, singling out geographically connected territories.	Extending the jurisdiction to reveal the system of “key regions” inside the country, to recognize their extended status different from that of the usual administrative territorial bodies.
Basic mechanism of management	Equal (diffusion-like) sharing of state capital investment and support between the territories at risk.	Directing the state capital investments into the growth of cohesion of the key regions and a global economy and the other regions of the country eliminating barriers preventing the spread of innovations.

According to the table, the authors of the policy oriented to equalize the levels of social and economic development of the regions can be attributed to «radical reformers», whereas the authors of the Strategy of Social and Economic development of RF Regions to the so- called “adaptors”.

The scientific Society and the representatives of RF regions strongly disapproved of the Concept of the Strategy of social and economic development of RF Regions due to the fact that it is primarily purposed to reach the goals of economic development of the country and its regions denouncing the goals to equalize the levels of social and economic development of the subjects (larger constituent territories) of the Russian Federation. It is proven by the results of the survey having been carried out with participation of regional

experts in August-September 2005 by the Fund of Information Policy Development and the information agency “Rosbalt” [9, p. 21–24; 10, p. 7–9]. Consequently, the Concept of the Strategy of social and economic development of RF Regions was not adopted officially, with all the counterargument having been taken into account.

The Concept of RF Regional Policy Improvement. In 2008 the Ministry of RF Regional Development came up with the draft of the Concept of RF Regional Policy Improvement. According to this concept the goal to provide for the balanced social and economic development of the subjects (larger constituent territories) of the Russian Federation is claimed to be the principal one. On the one hand, it assumes gradual elimination of differences in the levels of social and economic development of RF subjects. On the other hand, it aims to provide for the balance between the growth of the economic potential of the RF subjects and comfortable environment for RF population facilitating equal opportunities for the citizens of the Russian Federation to exercise their social and economic rights and satisfy their needs irrespective of the place of residence [11].

To reach these goals the draft of the Concept suggests three basic directions to improve and perfect regional policy. First, it is offered to improve the system of strategic planning of social and economic development of the regions. Second, it is vital to improve taxation and budgetary instruments of regional policy, and finally, to better coordinate and perfect the relations of federal and local government.

Comparative analysis of regional development concepts reveals certain differences between them simultaneously demonstrating some similar features though. As a matter of fact, it is determined by the fact that the Strategy of social and economic development of RF Regions and the Concept of RF Regional Policy Improvement rely on the same theory of polarized (cumulative) growth.

One of the latest developments in the sphere of spatial policy was reflected in the closing report about the results of an expert work over the topical problems of social and economic strategy of Russia for the period up to the year 2020. According to experts, the analysis of fundamental principles which should constitute the base of the Strategy of RF Spatial Development reveals the main goal of the government to support and improve urban territories with high population density.

As for the outlying territories, the experts consider that here we should rely on the policy of “controlled compaction”, involving “the stimulation of social mobility, optimization of budget services together with the development of local centers providing such basic services (including the services attributed to social mobility) and gradual adaptation of social security system” [1, p. 327].

The theory of cumulative growth exerted a powerful impact onto the ideology of the regional part of the draft of the Concept dealing with a long-term social and economic development of the Russian Federation, drawn in August 2008 by the RF Ministry of Economic Affairs.

In particular, one of the strategies of regional policy foreseen by the Concept of a Long-term Social and Economic Development of the Russian Federation is the development of technological, scientific and educational potentials of cities and towns, and it relies on the theory of growth poles developed by the French scholar J. Boudeville. Another strategy of regional policy which involves creating the network of territorial and production clusters [12, p. 93–106] with vast facilities for high-level production and raw material processing relies on scientific advances of J.R. Lasuen. Finally, the strategy of regional policy foreseen by the Concept of a long-term social and economic development of the Russian Federation, the one involving the development of large transport – logistics and production junctions relies on the theory of the P. Pottier about the “axes of development”.

In recent years an institutional approach is gaining popularity and it implies that a new regional policy can be realized due to the emergence and increased effectiveness of various development institutes. Thereby, those institutions should be various and should focus on different goals of territorial development, namely:

- the institutions which secure and carry out direct actions of the state to realize basic provisions of regional policy including the actions directed to the territories at risk (the fund of housing and communal services, the fund of financial support of the RF subjects, the fund of regional finance reforms, the fund of regional development etc.);
- the institutions purposed to stimulate innovative growth and development of the territories (special economic zones and the like);
- the institutions purposed to change the technologies of regional management;
- the institutions purposed to revitalize businesses and to strengthen horizontal ties, including cluster forms of business development» [13, p. 40].

Summing up our brief analysis of regional theories and key concepts of regional policies described above, it is important to note that all this groundwork in the theory of regional economy preconditions the formation of fundamental conceptual regulations laying grounds for the spatial development of the economy of any region, as well as for the territorial policy of any subject of the Russian Federation.

Nevertheless, in our opinion, we should discriminate between theoretical and practical issues of regional policy in the fields of its formation and implementation.

In theory, we are able to declare certain achievements of regional economics, whereas in practice these achievements are doubted by the scientific community. In relation to this N.V. Zubarevitch writes the following: “The actions undertaken by the state in the field of spatial development with the help of traditional instruments applied in the sphere of regional policy have proved to be ineffective. The programs were not implemented into practice, the economic zones failed to succeed together with the bids to create artificial agglomerations. Cluster policy has very little to boast of as well being compared to Soviet production complexes, whereas both the former and the latter were expected to fail” [14, p. 63].

There is no doubt that active globalization processes lead to the intensification of regional differentiation. All Russian regions which form national economy distinguish from each other because of the fact that natural resources in sufficient quantities are not available for all of them. As a result, the level of social and economic development of Russian regions varies very much. The Russian government’s primary objective is to provide for the balance between the growth of the economic potential of the Russian regions and comfortable environment for population facilitating equal opportunities for the citizens of the Russian Federation to exercise their social and economic rights and satisfy their needs irrespective the place of location.

Russian scientists try to divide the subjects of the Russian Federation into different groups depending on their efficiency. The first group (that is not as big as might have been) includes the so called efficient regions and the second one includes regions lagging in development or in other words depressed or under-developed regions. When we say “efficient regions” we mean regions that are simultaneously efficient by three criteria: production, finance and social environment. [15, p. 30]. It is obvious that regions with numerous social and economic problems need support. People ought to be happy and have social security in any geographical place of Russia. The world experience demonstrates that governments tend to give selective support of those territories that are lagging in development aiming at the regions’ equalization.

But the absolute equality of regions is a myth and is true not only for Russia but for other countries as well. The founder of the theory of polarized (cumulative) growth Swedish scientist G. Myrdal asserted that advantages of several regions determined acceleration of their development whereas the lagging of underdeveloped regions is being increased thereby. The effects of market forces cause the concentration of fast-developing and efficient industries at certain territories. This process is gradually gaining cumulative character since the more investments come to the region the stronger agglomeration effects are [16, p. 34]. The so called “principle of circular causality” arises when any advantage causes the range of consequences leading to progressive concentration and on the contrary, “drawbacks” of regions are also gradually multiplied [15, p. 29].

The relevancy of this theory is confirmed by modern regional empirical studies. For example A. Vlasyuk and O. Demina have collected and analyzed formal statistical information about the eighty RF subjects for 2000, 2007 and 2009 years. The analysis confirms the hypothesis that financial resources are moving to regions with the highest utmost productivity of production factors. As a result it leads to the accumulation of investment sources in such regions providing financial and social efficiency [15].

Due to the fact that a primary goal of any investment projects is profit-making, but not charity investments “rush” to territories with high concentration of advantages. Therefore, we are sure that government through its regional policy can help the lagging regions to reach the high level of efficient regions. Of course there is a variety of means that are able to revitalize the weak regions but the participation of government is essential.

According to A.N. Shvetsov government regional policy can be divided into two parts: system-wide policy and selective policy. The goal of a system-wide policy is the basis of prerequisites of regional development. The means it relies on are not selective and should affect all Russian regions evenly forming economical, organizational and legal environment for self-sufficient regions.

As for a selective policy, A. Shvetsov says that “it is direct and purposeful government influence on certain territories considered as problematic regions” [17, p. 43]. Nevertheless, some economists, for example, S. Leonov and O. Sidorenko, insist on supporting not only regions with problems but strong regions with high economic and investment potential as well. It means that even self-efficient regions can become objects of selective policy and government attention.

Accordingly, some specialists understand selective regional policy as deliberate actions of the state governing organs towards certain territories targeted at effective distribution of economic activity across the country [18, p. 69]. It refers not only to the equalization policy aiming to achieve the balance between levels of economic development of depressed regions and city agglomerations, but also to the polarized support of regions called “growth poles”. The support of regions with the highest economic and investment potential is purposed to stimulate their growth, and is claimed as the principal goal of the polarized regional policy. As a result, such regions like “driving forces” are pulling up the level of social and economic development of the national economy.

The theory of polarized (cumulative) development was first formulated by French economist named F. Perrou. The basis of it is the view that the sectoral structure of the economy plays a leading role with “propulsive” sectors producing new goods and services being the most important in the region economic development. The main concept of this theory is a conclusion that the growth occurs at “growth points” which become new poles attracting production factors. Then, this growth distributes itself through various channels inducing a variety of consequences.

Developing the theory of growth poles the French scholar J. Boudeville showed that not only the total of leading enterprises can be viewed as growth poles but the same can be referred to certain territories (settlements) as well, on condition that such territories

function as the source of innovation and progress for national or regional economy. A regional growth pole represents a set of developing and expanding industries located in the urban area. These growing sectors are able to cause further development of economic activity throughout their zone of influence. Therefore a growth pole can be understood as a geographical agglomeration of economic activity or as a total of cities having a complex of developing industries. From the scientific point of view the rating of growth poles offered by J. Boudeville is rather interesting. Briefly we should spot four groups of growth poles. The first group includes small and medium-sized traditional cities specializing on the tertiary sector serving the surrounding countryside. The second group embraces industrial medium-sized cities with diversified economic structure depending on external investments. The third one involves large urban agglomerations with developed economic structure including “propulsive” sectors that being a reason for the autonomous growth of such territories. Finally, the highest level, which is the fourth group, includes integration poles covering several urban systems and defining all evolution of spatial structures. It should be noted that autonomous growth is a distinctive feature of the highest levels (3 and 4), whereas the growth of the lowest levels is determined by the innovation diffusion mechanism [19, p. 142].

Historically, due to objective reasons, the regions that rely on agricultural and industrial specializations have always been referred to as under-developed regions. The theory of polarized (cumulative) development asserts that it is typical for the economy of such regions to have relatively weaker grounds for intensive growth. In the economy of agricultural regions large cities (growth poles) play a considerably less important role than in the economy of industrial regions. According to the hierarchy formed by J. Boudeville small and medium-sized cities with agricultural specialization have almost no opportunities for the autonomous growth. The problem is really great since such cities are numerous in number.

Nearly all scientists campaigning for the theory of polarized development expressed the opinion that growth poles depend on the export sector of the economy. The specific features of regions specializing on agricultural and industrial sectors are connected with the saturation of domestic market that kind of “deprives” them of certain development opportunities.

Regions with agricultural and industrial specializations are able to spread innovations widely when they are in the stage of mass distribution. Recently semiperipheral areas, trying to develop agricultural and industrial sectors of economy, have transformed into new regions of diffuse industrialization. It should be underlined that such transformation is possible providing that areas preserve the environment, infrastructure and a dense network of medium-sized settlements. Nevertheless such regions, as a rule, do not possess their own significant innovative potential. The share of modern and high-tech industries in the sectoral structure of production in the regions with agricultural and industrial specializations is relatively small. At the same time industries related to primary processing of agricultural raw materials have considerably large share.

From our point of view in modern Russia the industries of agricultural and industrial complexes can be considered as “propulsive” industries for the certain regions. Accordingly the innovation diffusion would reach the highest efficiency if it takes the form of agricultural and industrial integration. Furthermore the diffusion innovation should go not only from a growth pole (the largest city) to other large cities but from cities to the surrounding countryside as well.

The theory of polarized development assumes several directions of regional development regulation. To our mind it would be more useful and practical if the regulation directions are distributed and applied to different types of territories (Table 2).

Table 2

**Overall view of regulation directions of the development of regions
specialized on agricultural and industrial complexes**

The Type of Area	Specification	Regulation Directions
“Growth poles”	Large cities with diversified economy involving “propulsive industries”	The stimulation of growth points that are able to render a certain impact on adjacent areas.
“Territories that can be affected by the innovation diffusion”	Small and medium-sized agricultural cities and suburban areas	The promotion of the innovation diffusion mechanism. It is obligatorily to provide special management mechanism facilitating the development of such territories. The development of growth points.
The most under-developed areas without any opportunities of perspective growth	Distant areas primarily with agricultural specialization	Federal and local government must maintain suitable conditions not only for production but for social life as well

To ensure the territorial equity it is necessary to motivate and support the economic development of the under-developed areas. Such regions should be the main objects of selective regional policy targeted at regions’ equalization. In this case the policy has a stimulating character. The changing environment will help such territories to get external impulses for development and improve their social and economic situation.

We consider that the support of under-developed areas including regions with agricultural and industrial specializations should be distinguished from other measures of state regulation of spatial development. First of all such support should be direct and focus on the solving the exact problems in the exact areas. For example, regions’ equalization of economic development is possible by direct financial investments in order to assist depressed regions. We are sure that the implementation of state programs aimed at infrastructure development and the promotion of private investments to under-developed areas by providing tax benefits would be able to evolve economy of lagging regions. Indirect measures of regional policy are also widely used in practice of territorial regulation. There is no doubt that the adequate combination of direct and indirect methods would improve the investment climate of the certain areas and their investment attractiveness and as a result could significantly raise living standards in the future.

Summarizing all above it should be noted that the international experience of regional regulation shows that there are two sides of one coin. These are system-wide regional policy and selective regional policy. Their reasonable combination facilitates the efficient allocation of budgetary resources and not only accelerates the development of already successful regions, but also encourages the development of under-development areas.

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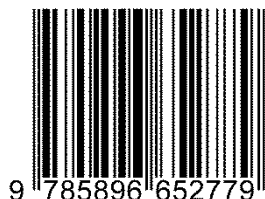


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LOCAL PRODUCTION SYSTEMS AND REGIONAL ECONOMIC DEVELOPMENT

Edited by
A.S. Novoselov, V.E. Seliverstov

ISBN 978-5-89665-277-9



Cover author A.V. Savarovsky
DTP and Prepress V.V. Lysenko, A.P. Ugryumov

Signed to print – 22.04.2014.
Paper size – 60×84 ¹/₈. Font – “Times New Roman”.
Amount of – 44 printed sheets, 41 publishing papers.
Circulation 200 copies. Order No 11.

IEIE SB RAS Publishing
Institute of Economics and Industrial Engineering
17, Ac. Lavrentiev ave.
Novosibirsk, 630090
