



Project “Functioning
of the Local Production Systems in the
Conditions of Economic Crisis
(Comparative Analysis and Benchmarking
for the EU and Beyond)” (FOLPSEC)



LOCAL PRODUCTION SYSTEMS IN COUNTRIES IN AND OUTSIDE THE EU: FROM THEORY TO PRACTICE

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UNIVERSITY OF NATIONAL AND WORLD ECONOMY
UNIVERSITY OF LODZ
MATEJ BEL UNIVERSITY BANSKA BYSTRICA
INSTITUTE OF ECONOMICS AND INDUSTRIAL ENGINEERING OF THE
SIBERIAN BRANCH OF THE RUSSIAN ACADEMY OF SCIENCES
NOVOSIBIRSK STATE UNIVERSITY
TERNOPIL NATIONAL ECONOMIC UNIVERSITY

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Coordinator: University of National and World Economy - Sofia, Bulgaria

Partners:

University of Lodz, Poland

University " Matej Bel " in Banska Bystrica, Slovakia

Institute of Economics and Industrial Engineering at the Siberian Division of the Russian Academy of Sciences, Akademgorodok - Novosibirsk, Russia

Novosibirsk State University in Akademgorodok, Novosibirsk, Russia

Ternopil National Economic University, Ukraine

This edition is prepared by:

Stanka TONKOVA, Prof. Doctor of Economic Sciences; Mariusz E. SOKOŁOWICZ, Assoc. Prof. PhD; Kamila BORSEKOVA, PhD; Almira YUSUPOVA Prof., Doctor of Economic Sciences; Olga BURMATOVA, Assoc. Prof. PhD; Yevhen SAVELYEV, Prof. Doctor of Economic Sciences

Reviewers:

Ivan GEORGIEV, Prof. Doctor of Economic Sciences

Dinko DINKOV, Prof. PhD

Copyreader: Rossitza VELINOVA, PhD

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CHAPTERS WRITTEN BY:

Agnieszka RZENCA: Chapter 3.10

Aleksandr NOVOSELOV: Chapter 2.4

Aleksandra NOWAKOWSKA: Chapter 1.1, Chapter 2.2

Aleksandra JEWTUCHOWICZ: Chapter 1.1

Almira YUSUPOVA: Chapter 2.5, Chapter 2.7

Asiya MARSHALOVA: Chapter 2.4

Ewelina KINA: Chapter 3.9

Filip FLASKA: Sub-chapter 2.3.6, Chapter 3.15

Galina MLADENOVA: Chapter 2.1

Georgi ZABUNOV: Chapter 3.3

Irena SLAVOVA: Chapter 3.5, Chapter 3.6

Ivaylo IVANOV: Chapter 3.1, Chapter 3.2

Jacek CHĄDZYŃSKI: Chapter 1.4

Kamila BORSEKOVA: Sub-chapter 2.3.2, Sub-chapter 2.3.7, Chapter 3.14

Katarina PETRIKOVA: Sub-chapter 2.3.5, Sub-chapter 2.3.7, Chapter 3.14

Lukasz ARENDT: Chapter 3.8

Magdalena KALISIAK-MEDELSKA: Chapter 3.7

Mariana KUZMANOVA: Chapter 1.3

Mariusz SOKOŁOWICZ Chapter 1.6, Chapter 2.2

Nadia GILINA: Chapter 3.3

Natalia KRAVCHENKO: Sub-chapter 2.4.1

Olga BURMATOVA: Chapter 2.6, Chapter 2.9, Chapter 3.18

Radko RADEV: Chapter 2.1

Sona CAPKOVA: Sub-chapter 2.3.4, Chapter 3.13

Stanislav KOLOŠTA: Chapter 2.3.1, Sub-chapter 2.3.3, Sub-chapter 2.3.6, Chapter 3.11, Chapter 3.12

Stanka TONKOVA: Introduction, Chapter 1.3

Svetlana KUZNETSOVA: Chapter 2.8

Tatiana SUMSKAYA: Chapter 2.6; Chapter 3.16; Chapter 3.17

Vladia BORISOVA: Chapter 3.4

Yevhen SAVELYEV: Chapter 2.10

Yevheniy KURYLYAK: Chapter 1.5; Chapter 2.10

Zbigniew PRZYGODZKI: Chapter 1.2, Chapter 2.2

ABOUT THE AUTHORS:

Agnieszka RZEŃCA, doctor in economic sciences. Assistant Professor, Department of Regional Economy and Environment, Faculty of Economics and Sociology of the University of Łódź; agnieszka_rzenca@uni.lodz.pl

Aleksandr NOVOSELOV, doctor in economic sciences, Professor, Head of the Department of Regional and Municipal Governance of the Institute of Economics and Industrial Engineering of the Siberian Branch of the Russian Academy of Sciences (IEIE SB RAS), asnov@ieie.nsc.ru.

Aleksandra NOWAKOWSKA, habilitatus doctor in economic sciences. Associate Professor, Department of Regional Economy and Environment, Faculty of Economics and Sociology of the University of Łódź; olanow@uni.lodz.pl

Aleksandra JEWUCHOWICZ, Associate Professor, Head of the Department of Regional Economics and Environment, Faculty of Economics and Sociology of the University of Łódź; jewtuch@uni.lodz.pl

Almira YUSUPOVA Professor, Department of Management, Faculty of Economics, Novosibirsk State University; yusupova_a@mail.ru

Asiya MARSHALOVA, doctor in economic sciences, Associate Professor, Department of Regional and Municipal Governance of the Institute of Economics and Industrial Engineering of the Siberian Branch of the Russian Academy of Sciences (IEIE SB RAS), marshal@academ.org.

Ewelina KINA, Ph. D candidate in economic sciences. Assistant, Department of Regional Economy and Environment, Faculty of Economics and Sociology of the University of Łódź; ewelina_kina@uni.lodz.pl

Filip FLASKA, doctor in economic sciences, Head of the Department of Public Economics and Regional Development, Faculty of Economics, Matej Bel University, fillip.flaska@umb.sk

Galina MLADENOVA, PhD. Associate Professor, Department of Marketing and Strategic Planning, Business Faculty of the University of National and World Economy, gmladenova@mail.bg

Georgi ZABUNOV, PhD. Associate Professor, Department of Real Estate Property, Business Faculty of the University of National and World Economy, zabunoff@gmail.com

Irena SLAVOVA, PhD. Associate Professor, Department of Marketing and Strategic Planning, Faculty of Management and Administration of the University of National and World Economy, irenaslavova@yahoo.com

Ivaylo IVANOV, PhD. Assistant Professor, Department of Industrial Business, Business Faculty of the University of National and World Economy, i.ivaylo@unwe.bg

Jacek CHĄDZYŃSKI, doctor in economic sciences. Assistant Professor, Department of Economy of Territorial Self-Government, Faculty of Economics and Sociology of the University of Łódź; jacekch@uni.lodz.pl

Kamila BORSEKOVA, doctor in economic sciences, Head of the Institute of Economic Sciences, Faculty of Economics, Matej Bel University, kamila.borsekova@umb.sk

Katarina PETRIKOVA, doctor in economic sciences, Department of Public Economics and Regional Development, Faculty of Economics, Matej Bel University, katarina.petrikova@umb.sk

Łukasz ARENDT, doctor in economic sciences. Assistant Professor, Department of Economic Policy, Faculty of Economics and Sociology of the University of Łódź, m_medelska@tlen.pl

Magdalena KALISIAK-MĘDELSKA, doctor in economic sciences. Assistant Professor, Department of Economy of Territorial Self-Government, Faculty of Economics and Sociology of the University of Łódź, m_medelska@tlen.pl

Mariusz E. SOKOŁOWICZ, doctor in economic sciences. Assistant Professor, Department of Regional Economy and Environment, Faculty of Economics and Sociology of the University of Łódź; sokol@uni.lodz.pl

Nadia GILINA, Assistant Professor, Department of Real Estate Property, Business Faculty of the University of National and World Economy, ngilina@yahoo.com

Natalia KRAVCHENKO, doctor in economic sciences, Professor, Department of Management, Faculty of Economics, Novosibirsk State University; natakavchenko20@mail.ru

Olga BURMATOVA, doctor in economic sciences, Associate Professor, Department of Regional and Municipal Governance of the Institute of Economics and Industrial Engineering of the Siberian Branch of the Russian Academy of Sciences (IEIE SB RAS), burmatova@ngs.ru.

Radko RADEV, PhD. Chief Assistant Professor, Department of Industrial Business, Business Faculty of the University of National and World Economy, radko_radev@unwe.eu

Sona CAPKOVA, Associate Professor, Department of Public Economics and Regional Development, Faculty of Economics, Matej Bel University, sona.capkova@umb.sk

Stanislav KOLOŠTA, doctor in economic sciences, Department of Public Economics and Regional Development, Faculty of Economics, Matej Bel University, stanislav.kolosta@umb.sk

Stanka TONKOVA, D.Sc.(Econ). Professor, Department of Marketing and Strategic Planning, Business Faculty of the University of National and World Economy, tonkova@unwe.bg

Svetlana KUZNETSOVA, doctor in technical sciences, Head of the Department of Management, Faculty of Economics, Novosibirsk State University; kuzosvet@mail.ru

Tatiana SUMSKAYA, doctor in economic sciences, Associate Professor, Department of Territorial Systems of the Institute of Economics and Industrial Engineering of the Siberian Branch of the Russian Academy of Sciences (IEIE SB RAS), tanyushka333@yahoo.com.

Vladia BORISOVA, PhD. Associate Professor, Department of Creative Industry and Intellectual Property, Business Faculty of the University of National and World Economy, centreip@unwe.bg

Yevhen SAVELYEV, Doctor of Economic Sciences, Professor, Ternopil National Economic University, savelyev@tneu.edu.ua

Yevheniy KURYLYAK, PhD student. Ternopil National Economic University, altima88@mail.ru

Zbigniew PRZYGODZKI, doctor in economic sciences, Assistant Professor, Department of Regional Economy and Environment, Faculty of Economics and Sociology of the University of Łódź; zbycho@uni.lodz.pl

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PREFACE

The present monograph is the result of theoretical and empirical research carried out under Project “Functioning of the Local Production Systems in the Conditions of Economic Crisis (Comparative Analysis and Benchmarking for the EU and Beyond)” (FOLPSEC). The research leading to these results has received funding from the People Programme (Marie Curie Actions) of the European Union’s Seventh Framework Programme FP7 /2007-2013/ under REA grant agreement N 295050.

The establishment and functioning of local production systems was studied through a process-based approach. Such an approach allows for aggregation of the research findings on continuity and outreach of both scientific ideas and their applied aspects in countries in and outside the EU. Studying the impact of the global economic and financial crisis on the establishment and functioning of local production systems posed a stimulating challenge to all participants.

A look at the list of references would lead one to believe that there are numerous and diverse sources of information on local production systems. However, the authors noticed a lack of systematic research on the topic that simultaneously synthesizes the existing knowledge on the topic and points to ideas and issues related to the economic, political, legal, institutional, and social environments that influence the development of LPS. It was precisely this lack of systematic research that determined the structure of the monograph. The results are presented in three chapters, each independent and complete in and of itself, but still related to the other two through an overarching concept.

Chapter I presents theoretical concepts and ideas on the establishment, functioning, and development of local production systems within the context of sustainable development, including the idea of LPS as forms of territorial organisation of production. A common variation of LPS – clusters – is also discussed. In addition to systematizing fundamental theories on LPS, the chapter offers empirical evidence of their evolution and identifies conditions and critical success factors for their creation, development, and functioning.

Chapter II is dedicated to the impact of several universal and persistent features (characteristics) on LPS typology: number of constituent entities, type of integration between constituents, scope of activities and geographical factors, stage and level of development, level of technological advancement, competitiveness and innovation capacity, etc. The chapter also presents various distinctive characteristic of LPS in Poland, Slovakia, and Russia and highlights the role of large corpo-

rations in the development of LPS in Siberia, as studied on the basis of empirical evidence.

Chapter III contains the results of empirical studies on the functioning of LPS in the unstable environment created by the economic crisis. A comparison between project countries in the EU (Bulgaria, Poland, and Slovakia) and outside the EU (Russia and Ukraine) emphasizes the specific aspects of the research problem in each country. The study utilises a single framework, albeit with slight variations by country in terms of conditions and policies related to the functioning of LPS. The framework includes: 1) economic, social, and political environment, 2) institutional arrangements and legal framework, including the degree of protection of intellectual property, 3) environmental conditions, 4) role of the state, 5) local self-governance, and 6) various stakeholders in the establishment, functioning and development of LPS.

We would like for our book to reach a wide audience, which is why we have chosen an electronic format that facilitates access to the major conclusions of our research. The book may be as useful to the economic policy makers at regional and country levels in the EU as it is to the beneficiaries of their policies. As academics, we also hope to reach teachers and students of Economics, Industrial Management, and Management of Regional Development. Under the current programme period (2014-2020), each of these reader groups can help overcome the institutional barriers to the development of LPS and advance the work towards their establishment and functioning – work based on universal and sustainable implementation mechanisms backed by innovation.

I. THEORETICAL CONCEPTS SUPPORTING LPS

1.1. Main ideas for the functioning and development of LPS

1.1.1. Global territorial development conditions

The crisis of the model underlying the development of large-scale production, mass consumption and huge vertically integrated multinational corporations initiated rapid and deep economic and social changes in Western Europe. Globalisation is the main challenge faced by all economies, irrespective of their size and stage in development or transcreation¹.

As an economic phenomenon globalisation does not concern societies or nation states but transnational corporations, markets and market operators – the main actors in the development of a global system linking and subordinating individual economies. Operating under pressure to survive, they must evolve and constantly adjust to changes, which they themselves have provoked. Corporations did not become global overnight. In fact, they have undergone a long and complex process of adjustments and adaptations that paved the way to global operation².

Globalisation blurs the traditional and familiar division of the world into a centre and peripheries. Nothing is as clear and unambiguous as it used to be and relationships undergo significant changes. The old division into a centre and peripheries studied at global scale is much less clearcut and the “space-territory” is evolving into a multi-fold space composed of integrated elements of various sizes. Social and economic territory is significantly more uniform at global scale and much more segmented locally. In developed countries, sectoral economic operations in regions become more and more similar. Local discrepancies intensify and extreme the wealth of neighbours extreme poverty.³

Globalisation is accompanied by regionalisation understood in two ways. On the one hand, it is about the development of international regional groupings (international regions), on the other hand, it is about the deepening the regionalisation of national economies. These processes coexist becoming the leading platform for economic transcreations. Development processes shifted from national level (which dominated in the Fordism era) towards international and regional ones. Development relations and mechanisms at national scale are pushed out by the global and regional dimension. Consistently, globalisation works to change the

¹ A. Jewtuchowicz, *Terytorium i współczesne dylematy jego rozwoju*, Publishing House of the University of Lodz, Lodz 2005, p.5.

² *Ibidem*, p. 12.

³ P. Veltz, *Mondialisation, villes et territoires*, L'économie d'archipel, PUF, Paris 1996, pp. 55-58.

balance of power among the key actors on the political, economic and spatial scene. The functions of nation states evolved and their competences were redistributed between two levels of power. Empowered local and regional communities and international organisations have thus gained in importance⁴.

On the one hand, globalisation leads to increasing production internationalisation, which breaks down local space. On the other hand, it increases the importance of the local level in economic development. Our prior thinking in terms of national-international is being replaced by an analysis of global-local relations. In the 1980s the motto “think global, act local” was formulated, meaning in practice the emergence of networks of autonomous communities (countries, regions) that are independent of one another but coordinate their actions in order to protect shared values (e.g. environmental protection at global scale). Later, the motto was reversed to “think local, act global” to reflect the stronger conviction that global actions may not be successfully delivered unless thinking in local categories.⁵

1.1.2. Globalisation – a link between the global and the local aspects of development

One of the causative factors of globalisation was related to the development of corporate strategies connected with the enhanced importance of global competition and innovation. In economic terms, the most fundamental change in production organisation does not exist in accelerated trade exchange but in the fact that production takes place in many places at any time. Important features of globalisation consist, on the one hand, in spatial dispersion of business activities (on a global scale) and, on the other hand, international coordination of these activities.⁶ Thus, the fundamental element of contemporary globalisation is not about making the production or market processes uniform, but about a global approach to existing divergences. Global corporations are not looking for uniformity but for a holistic approach to various national or regional contexts and adopt strategies to control these divergences.

Globalisation is closely linked to territorial development as it contributes to the valuation of specific competences in various areas necessary to maintain production and innovation. The more business competitiveness depends on innovation-based production, the greater the differences in location are important. The phe-

⁴ A. Nowakowska, *Regionalny wymiar procesów innowacji*, Publishing House of the University of Lodz, Lodz 2011, p.11.

⁵ B. Leprince (ed.), *Mondialisation, en defipour les citoyens*, Actes du colloque, Toulouse 1998, pp. 45-48; K. Krzysztofek, M. Szczepański, *Zrozumieć rozwój. Od społeczeństw tradycyjnych do informacyjnych*, Publishing House of the Silesian University, Katowice 2002, pp. 156-159.

⁶ O. Torrès, *Les PME, DOMINOS*, Flammarion, Paris 1999, p. 85.

nomenon is called “glocalisation”⁷ as it stresses the complementary aspects and the concurrent nature of developing globalisation, and the increasing importance of local development.

In economics, glocalisation combines two notions: globalisation and location. Location decisions were and still are one of fundamental strategic choices of any enterprise. Globalisation has not eliminated the importance of location for competition as M. Porter⁸ concluded in his writings. Although companies must compete at a global scale and inputs, such as raw materials, capital and knowledge freely circulate across the world, location remains to play a crucial role in building up competitive advantage. A company must make a decision about where it should locate each of its operations and how many locations there will be. In practice, there are various combinations resulting from preferences of the management and adopted business strategies taking account of factors such as technology, human resources, taste, government policy, markets, scale of operations, and the presence of the most cost-effective resources of raw materials.

Location decision is largely motivated by the perspective of achieving a competitive advantage resulting from being a part of a community, which is the most conducive to innovation and enhanced effectiveness in the region.⁹ Globalisation, on the one hand, accelerates the rhythm and imposes fast speed on the economy, which in a short-run and at high uncertainty restricts all predictions, but, on the other hand, competitiveness in real economy exposes local resources that may be generated and exploited only under relatively stable and sustainable conditions, to a game.¹⁰ We mean here location-specific elements, such as: employees’ skills, trust in relations between actors, collective ability to control technical systems.

On the one hand, glocalisation identifies the role and the place of the dynamics of local development and the importance of local activities for globalisation; on the other hand, it demonstrates the importance and place of global processes in devel-

⁷The term “glocalisation” was disseminated by A. Morita, one of the CEOs of Sony, it combines two notions: globalisation and localisation and was used in official Japanese documents; it is very descriptive and embraces various realities, see P. Veltz, *Mondialisation, villes et territoires. L'économie d'Archipel*, PUF, Paris 1996, p.122.

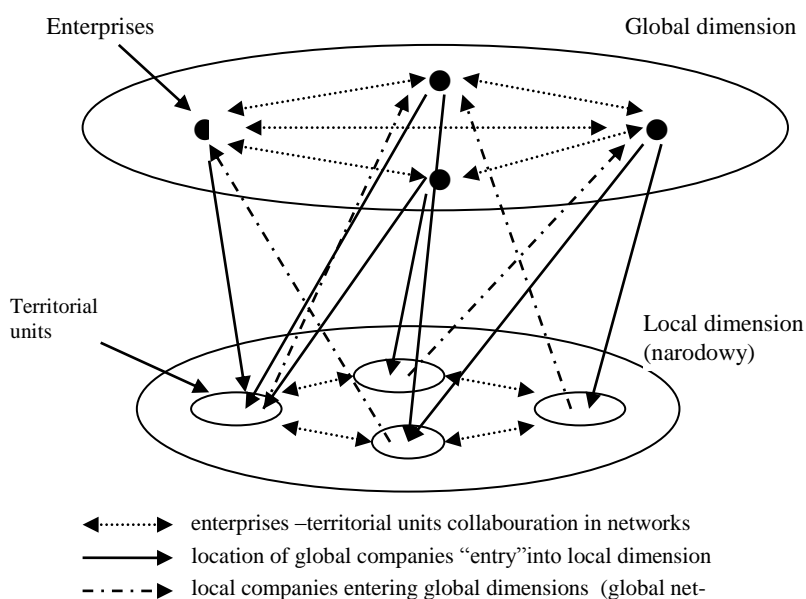
⁸ M. Porter, *Porter on Competition*, PWN, Warsaw 2001, p. 399.

⁹ I. Pietrzyk explains that the major difference between competitive advantage and comparative advantage consists in the fact that the first one is developed deliberately and, if not maintained, it may disappear, while comparative advantage is somehow “given” (e.g. raw materials in a given area) and continues to exist without any special actions by local authorities or institutions but, like the first one, it may cease to exist, I. Pietrzyk, *Globalizacja, integracja europejska a rozwój gospodarczy*, [in:] *Wiedza, innowacyjność, przedsiębiorczość a rozwój regionalny*, ed. A. Jewtuchowicz, Publishing House of the University of Lodz, Lodz 2004.

¹⁰ P. Veltz, *Mondialisation, villes et territoires, L'économie d'archipel*, PUF, Paris 1996, pp. 129-135.

opment strategies of a given territory¹¹. It allows us to understand how global economy becomes rooted in historical territorial structures and how it uses and transforms local resources (Fig.1.1).

Figure 1.1. Interdependences and intertwining of global and local dimensions



Source: A. Jewtuchowicz, Terytorium i współczesne dylematy jego rozwoju, Publishing House of the University of Lodz, Lodz 2005, p. 40.

Considerations over globalisation include two separate, but complementary viewpoints. The first concerns the reasons and consequences of a company's (usually global or international) location; the second draws attention to conditions of the opening of a territory and its integration with the rest of the world and to the policy of improving its attractiveness. Each of these approaches is equivalent to the two theoretical notions: proximity and availability interpreted as features of globalisation resulting from advancements in new ICT. They strengthen local development and facilitate global processes.

¹¹ O. Torrès, Lokalna globalizacja czy globalna lokalizacja. Rozważania na temat globalizacji, [in :] Wiedza, innowacyjność, przedsiębiorczość a rozwój regionalny, A. Jewtuchowicz (ed.), Publishing House of the University of Lodz, Lodz 2004, p. 25.

Proximity is a complex phenomenon that is strongly linked to territory. It has an impact on certain features of the local production system and serves as the basis of the idea of endogenous growth. In glocalisation, proximity describes the presence of the local plane in the global one. It explains, first of all, the importance of external effects (agglomeration) at locations where globalisation intensifies. Availability is connected with the notion of a network and "...is reflected in the possibility of almost immediately linking two points in the globe, which were previously distant"¹². Availability explains how the global platform combines with the local one and assigns a specific role to production factors, which cannot be purchased or transferred to another location. They include, for example, local entrepreneurship community treated as a collective "producer" of innovation, intellectual capital or culture, broadly understood, inherently linked to a specific location and its history.

1.1.3. Network-based organisation of the economy

Acceleration and changeability, so characteristic of our times, require a different organisation and structure of the economy. This is so as neither the market nor their hierarchical structure ensure proper coordination. Hierarchical organisation works when the market is stable but fails dramatically under conditions of continuous changes as it is too rigid to adjust to rapid market changes.¹³

At present, the economy is built based on intertwining chains of social, political and economic relations. Castells defines networks as "... a collection of nodes connected with one another" and highlights their natural flexibility and easy adjustments to current requirements, the features of which are decisive for the survival in a fast changing environment. Besides, networks improve the differentiation and help the control, distribute risk between many partners, improve access to technology, enable the acquisition, transmission, selection and control of information, etc.¹⁴ Networks are present in all areas of economic and social life and network-based structures perform better than vertically integrated enterprises and centralised bureaucracy.

The notion of a network is complex and reflects the entire complexity and richness of the relations of humans involved in various types of activities. Networks are also a multi-dimensional notion. D. Maillat, M. Quévit and L. Senn, describe

¹² Ibidem, p. 26.

¹³ J. Rifkin, *Wiek dostępu. Nowa kultura hiperkapitalizmu, w której płaci się za każdą chwilę życia*, Wyd. Dolnośląskie, Wrocław 2003, p. 27.

¹⁴ M. Castells, *Galaktyka Internetu. Nowe horyzonty*, Dom Wydawniczy REBIS, Poznań 2003, p. 11.

five dimensions from the perspective of which networks can be characterised and analysed:¹⁵

- organisational dimension; from a theoretical viewpoint, a network of innovations goes beyond limits delineated by the relations company-market; it is a specific organisation alternative to the market and hierarchical economic organisations, which enables its actors to reduce transaction costs;
- time dimension; network suggests the existence of a system of stable relations between various actors based on knowing each other and on mutual trust; these relations evolve over time;
- cognitive dimension; knowledge and the ability to operate in a network are something more than the mere sum of individual competences; it is a way to acquire collective knowledge in an organisation; the emergence of an environment enables the use of knowledge dispersed among entities, which cannot be transferred to others and which is contained in techniques that enable finding new solutions when people are confronted with specific circumstances, problems or tasks;
- normative dimension; each network has got its own, more or less formalised, rules of conduct; these rules specify the scope and space of common actions allowing for greater stability *vis-a-vis* the changes in the environment;
- territorial dimension; territorial proximity of partners in a network is beneficial for a company, when it needs easy access to technological, financial and commercial incitation; besides, an enterprise should present itself in a network as an effective partner offering benefits to others; this position comes from the culture and "industrial atmosphere" of the place where it is based.

Networks can take different forms: formal and informal, established for the mere exchange of incitation or for joint production and trade. They come in various forms, constantly evolve and may be of dual nature, i.e. they may refer to both enterprises in a network and network in enterprises.¹⁶

For companies the need to enter a network is a simple consequence of globalisation, which makes them constantly search and discover new relations among solu-

¹⁵ D. Maillat, M. Quévit i L. Senn, Reseaux d'innovation et milieux innovateurs, Rev ue d'Economie Regionale et Urbaine no 3/1993, pp. 7-8.

¹⁶ A. Jewtuchowicz, Terytorium , op. cit., p. 34.

tions offered by contemporary technology and possible customer's needs.¹⁷ Thus, a company must acquire new skills, which will transform it from a rigid, hierarchical structure in a relatively loose network organisation, where each point represents a unique combination of these skills. Allen Scott described the process, where spatial systems of the Fordist era (vertically integrated) are replaced by loose groupings of companies seeking minimum transaction costs.¹⁸ In fact this leads to network organisation, which is an industrial and territorial organisation at the same time. Such networks cover the entire world, which, on the one hand, provide a company with the possibility to exploit local resources (mainly knowledge and technology) in a coordinated way in places where they exist and, on the other hand, they enable servicing segmented markets by offering products and services adjusted to local requirements.¹⁹

Networks enable the companies' quicker access to new resources and services and the reduction of the "irreversibility" of costs connected with vertical integration. They allow for flexible and mutual exchange of economic partners. A network provides group solutions to technical and organisational problems. Thus, there is a sort of "collective" actor considered as a system of mutual relations between economic and social partners guided by certain goals. Spontaneity and creativity coming from collaboration give them collective advantage in a new, more demanding economy of new technologies.

In an economic community representing a high density of relations, an entrepreneur can more easily find a partner operating in geographical proximity and he meets more people being supported by institutions acting to foster network efficiency. If a network is active, a company will find sources of funding, innovations, educational opportunities, incitation, etc. In real life, as stressed by B. Pecqueur, entrepreneurs are simultaneously engaged in various formal and informal networks.²⁰ The latter are much more difficult to detect as they concern primarily personal relations, characteristic of the local culture and provide an indispensable supplement to institutional networks. Informal relations develop flexible chains of relations without any precise ramifications, which mobilise capital and human energy.

¹⁷ R. B. Reich, *Praca narodów. Przygotowanie się do kapitalizmu XXI wieku*, Wyd. A. Marszałek, Toruń 1996, pp. 73-74.

¹⁸ A. Scott, *High Technology and Territorial Development: The Rise of the Orange County Complex*, *Urban Geography*, vol. 7, 1986.

¹⁹ G. Stonehouse, J. Hamill, D. Campbell, T. Purdie, *Globalizacja. Strategia i zarządzanie*, Felberg, Warsaw 2001, p. 24.

²⁰ B. Pecqueur, *Le developpement local: pour une economie des territoires*, Syros, Paris 2000, p. 42.

Networks develop as voluntary manifestations of entrepreneurs' needs. The process results from active transcreation of the entire community and the understanding of benefits of cooperation, in particular in using new technologies. Experience shows that local authorities play a significant role together with public and private institutions and big enterprises.

1.1.4. Territory and territorial development

Changes in the organisation of enterprises appeared in the period 1970-1980. These were related with the emergence of new production spaces, replacing a competitive model of operators' behaviour with a new idea of collaboration and cooperation. A new paradigm appeared: the territory.²¹

In the territorial paradigm of development, a territory is not distinguished according to geographical and administrative criteria but it is a space shaped by history with a specific institutional and organisational system. I. Pietrzyk stresses that "the notion of a territory exceeds physical space and is interpreted as a space "constructed" (in French "construit") by a given community with its own history and culture, accumulated knowledge and skills together with its institutions and networks of relations among all actors of social and economic life".²² A territory is not identified by its size or borders but by its organisation. It is most of all the product of actors linked by a common goal.²³ It is defined through the actors who identify themselves with it, through their joint actions and, in fact, it emerges from actors' organisations. A. Jewtuchowicz, interprets a territory as an active subject with its own organisational logic, which may either mobilise or restrict the development of its operators.²⁴

The concept of a territory and its role in social and economic development is radically different from traditional interpretations of space and local development in the economic theories. The approach shows how a given space provides dynamics and own autonomy in the development processes. In this approach, space "generates" economic dynamics and equips it with its specific features. Space is no

²¹ Many authors credit Aydalot (1976) for drawing attention to territorial aspects of the development in his work "Spatial dynamics and development imbalances", in which by analysing mechanisms governing spatial economy he attempts to explain development dynamics and its imbalances. The work opened up the research area for analysing space/location as an active development factor. Together with later studies by other authors, it paved the way to in-depth analysis of dynamics of territorial organisations.

²² I. Pietrzyk, *Globalizacja, integracja europejska a rozwój regionalny*, [in:] A. Jewtuchowicz (ed.), *Wiedza, innowacyjność, przedsiębiorczość a rozwój regionów*, Publishing House of the University of Lodz, Lodz 2004, pp. 12-13.

²³ B. Pecqueur, *Le developpement local : pour une economie des territoires*, Syros, Paris, p. 132.

²⁴ A. Jewtuchowicz, *Terytorium*, op.cit., pp. 69-71.

longer interpreted as a static location of resources and economic operators and the shift is made towards its dynamic identification through the relations and involvement of local actors and social and institutional capital. From an economic point of view, space is neutral while a territory integrates or contributes to the integration of economic actors. Space is the platform of market mechanisms, while a territory is the source of resources. In the first case, the relation with companies is one-way and refers to benefits enjoyed by companies from factors available in the space. When the factors get exhausted, a company usually seeks a new location and delocalises. In the case of a territory, relations with enterprises are mutual, more complex and take time.²⁵

The notion of a territory recently developed in economic sciences and includes the idea of organisation, policy, economics and the society with its historical, ideological, sentimental dimensions extended with beliefs. A territory is a historical construct, which in its specific development path acquired its own technical and human potential. G. Garofoli defines it as “an area where market exchange meets social forms of regulation; an area which determines various types of production organisation and innovation capacity (both with reference to products and processes), leading to diversification of the output offered on the market based not only on relative costs of factors.”²⁶ Thus, a territory is treated as a form of economic organisation, as a place of collective and localised economic processes.

One of the fundamental notions and the cornerstone of the idea of territorial development is proximity, which conditions the dynamics and level of development of a territory. Proximity is a complex, multi-dimension term and in literature we can find many concepts which are ascribed to it.²⁷ Proximity, in all its varieties, has become the central category in modern economic sciences. As we can read in Ph. Cooke, the forecasts of the decline of the significance of distance and “the end of geography” originating on the basis of new inventions and the Internet era were largely exaggerated.²⁸ Advancements in the means of transport and communication technologies have surely transformed cooperation and coordination of activities among economic actors, which does not mean, however, that they have autonomously removed the importance of physical proximity and replaced the ‘face-to-face’ contact.

²⁵ A. Nowakowska, *Regionalny wymiar*, op. cit., pp.16-17

²⁶ G. Garofoli, *Economic Development, Organisation of Production and Territory*, *Revue d'Economie Industrielle*, vol. 64/1993, p 24.

²⁷ Various concepts of the notion of proximity are presented in the special edition of *Revue d'Economie Régionale et Urbaine*, No. 3 1999.

²⁸ Ph. Cooke, *Bliskość, wiedza i powstawanie innowacji*, *Studia Regionalne i Lokalne*, No. 2(24)/2006, p. 21.

Many authors dealing with theoretical studies²⁹ have distinguished different types of proximity:

- Cognitive proximity - understood as a kind of similarity and ability to communicate, using the same language typical of a given community.³⁰ It is the ability of the organisations to learn from each other and to assimilate new knowledge, the ability to communicate, understand and process knowledge. In cognitive proximity, organisations have the same background of knowledge and experience and by sharing them they may learn from each other and develop new knowledge resources. As stressed by R. Boschma, it is not only the question of how fast and how effectively in-creation and knowledge are acquired but mainly the question of expanding the limits of cognition.³¹
- Organisational proximity - refers to the economics of transaction costs. It says that the organisational structure of the economic activities (e.g. networks, clusters, integrated corporations) defined, among others, by the level of autonomy, types of relations or levels of control, importantly determines interactive learning and knowledge exchange.³² Organisational proximity is understood as a specific organisational solutions, both within an entity and in external relations. These solutions not only create mechanisms of transaction coordination but are also the driving force for knowledge and in-creation transfer in the world of high operational uncertainty. Organisational proximity identifies the ability of an organisation (company, administrative unit, network, community, environment, etc.) to cooperate and to undertake common activities.
- Social proximity – it results from economic relations deeply embedded in social context, and importantly impacts on the economic performance of the organisations. Social proximity refers to the roots of organisations and relations based on family and friendly ties. Social ties, friendship, common experience, loyalty or mutuality, together

²⁹ Proximity paradigm dynamically developed at the beginning of the 1990s mainly by French economists and geographers has importantly contributed to these considerations.²⁹ Main representatives of the school of thought are A. Rallet, A. Torre, and J.B. Zimmermann. As pointed out by the authors of the concept, the interest in the phenomenon of proximity is derived from three main theoretical trends: innovative milieu, industrial district, and new economic geography.

³⁰ A. Nowakowska, Regionalny kontekst procesów innowacji, [in:] A. Nowakowska (ed.), Budowanie zdolności innowacyjnych regionów, Wydawnictwo Biblioteka, Lodz 2009, p. 31.

³¹ Boschma R.A., Proximity and innovation..., *op.cit.*, p. 63.

³² Many authors stress that cognitive dimension of proximity is distinguished from its organisational dimension only for analytical purposes.

with the social context of economic relations and behaviours lead to better economic performance.

- Institutional proximity is based on interpretations under the new institutional economics. Institutions defined as collections of common ties, procedures, recognised principles, rules and regulations of relations and interactions between entities are perceived as the primary determining factor of development. As a result, institutional proximity is interpreted as common rules of the game developed by common customs and rules (informal institutions) and the legal system providing the framework for economic operations (formal institutions). These institutions provide the foundations for the coordination of economic operations, contributing to the exchange of information, cooperation, interactive and collective learning. Institutions provide a sort of “glue” for joint actions, reduce uncertainty and transaction costs.³³ Formal institutions are usually established at a supra-local level (legal rules), while informal institutions are strongly localised and connected with the territory (e.g. cultural rules, habits). Institutional proximity conditions the scope and way of coordination of market behaviour of operators or organisations.
- Geographical proximity is interpreted as spatial distance, physical distance between economic actors. It is the source of direct contact and enhances the intensity and density of relations between operators. The same location in a given production system generates many positive external effects, which become less important when spatial distance increases. Benefits of geographical proximity were identified and explained by earlier trends of economic geography under the theory of agglomeration and that of externalities.³⁴

Geographical proximity plays an important role in building other types of proximity. It may complement, reinforce and often even initiate social, organisational, institutional or cognitive proximity. Geographical proximity may compensate weakness or deficit of spatial proximity and, mainly, of institutional proximity. It facilitates the development of informal relations, coordination and transfer of relations from one organisational context into the other; it strengthens the development of “embedded” relations between entities. Hence the analysis of geographical proximity should be conducted in connection with other, non-spatial dimen-

³³ R. A. Boschma, Proximity and innovation: a critical assessment, *Regional Studies*, Vol. 39.1, 2005, p. 68.

³⁴ A. Nowakowska, *Regionalny wymiar ...*, p. .

sions of the phenomenon.³⁵ Various types of proximity are closely interrelated with one another; they complement one another and inter-depend on one another. Each of them may instigate positive and negative development mechanisms of knowledge and increation resources.

New development paradigm originates from and cumulates many permeating theoretical approaches. The territorial approach exploits mainly multi-dimensional analysis of proximity and resource-oriented issues focused on specific and generic assets and resources. These two theoretical trends helped identify the trajectory of territorial development and demonstrate the logic of shifting from agglomeration through specialisation to specificity in spatial development. These three phases of spatial development are:

1. Agglomeration phase characterised mainly by geographical proximity and a concentration of more or less heterogeneous activities in space;
2. Territory of specialisation based on geographical and organisational proximity (accumulation of knowledge in the area of specialisation);
3. Territory of specificity exploiting geographical, organisational and institutional proximity³⁶

The interdisciplinary nature of the territorial paradigm of development is an indisputable advantage of the approach contributing to the complexity. Territory is identified and described as³⁷:

- an abstract space defined by the borders of a network and the activity of the entities of which it is composed and that operate within it;
- a historically shaped location with a strong social and institutional context, defined by its development path (evolutionary approach);
- a location developed by the actors representing the logic of an “active space”, identified and created by the entities that operate within it;
- a place where economic activity and relations between partners are generated and where the cost of economic transactions are reduced;
- a location of specific resources and social capital indispensable for knowledge development (in particular interactive learning), innovation processes and technology transfer;

³⁵ A. Torre, Retour sur la notion de proximité géographique, *Géographie-Economie-Société*, Vol 11/1, pp. 64-69.

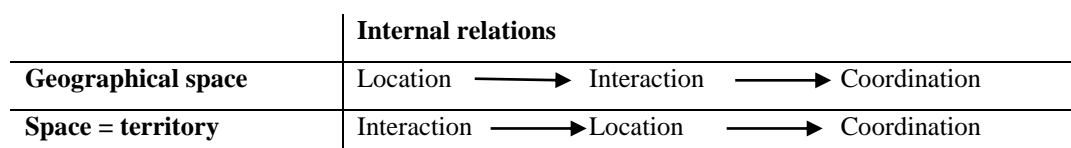
³⁶ B. Levesque, Contribution de la ‘nouvelle sociologie économique’, [in:] G. Massicotte (eds.), *Sciences du territoire. Perspectives québécoises*, Presses de L’Université du Québec, 2008, p. 207.

³⁷ A. Nowakowska, *Regionalny wymiar ...*, p. 17.

- a place with its own method of coordinating the behaviours of individual entities and managing change (*governance*).

A new development paradigm does away with the functional logic of social and economic life and tries to place development processes in a local context, using the resources and actions of the local community³⁸. In the territorial approach space is “improved” with the new content of social and cultural values and traces of local history. This space is clearly different from the geographical space as it contains elements of the social phenomenon, where its actors have a link to economic, cultural and historical values³⁹. Contrary to the classical interpretations of space, territory is based on interactions between actors. They identify places and define coordination methods (Figure 1.2). The territorialisation of the development mechanisms and processes offers unlimited opportunities for different trajectories of local development, which derive from internal relations, common interests or abilities to develop common resources⁴⁰.

Figure 1.2. Changes in spatial relations and mechanisms



Source: B. Pecqueur, J. B. Zimmermann, *L’Economie de proximités*, Hermes Science Publications, Paris 2004, p. 30.

According to this approach the territory is a place where resources and entities are jointly generated, and in creation, knowledge and skills are accumulated. It is a source of innovation and economic success for the individual operator. Thus territories – significant forgotten development factors as labelled by the OECD⁴¹ – regain their importance. Territory becomes a fundamental resource, which determines sustainable development.

1.1.5. Corporate location strategies and territorial development

By distinguishing between a space and a territory we may conclude that local development is a specific type of development with the local community becoming its primary enabler. Consistently the notion of “space-location” is being re-

³⁸ Ph. Aydalot, *Economie regional et Urbaine*, Paris, Economica, 1984, p. 109.

³⁹ F. Moulaert, F. Sékia, *Territorial Innovation Models: A Critical Survey*, Regional Studies, Vol.37.3/2003.

⁴⁰ A. Jewtuchowicz, *Terytorium i lokalne systemy produkcyjne a globalizacja gospodarki*, [in:] W. Kosiedowski (ed.), *Gospodarka i polityka regionalna okresu transformacji*, Wyd. Uniwersytetu Mikołaja Kopernika, Toruń 2001, p. 38.

⁴¹ OECD Report, *Cities and regions in the new learning economy*, Paris 2001, p. 23.

placed with the notion of “space-actor” (even when a territory is not an actor itself or in the literal sense). Development is not interpreted as an outcome of trade but as a result of a complex system of relationships between actors concentrated in a given geographical space with its own culture and history. The specificity of a territory becomes its competitive advantage, which is decisive not only for its development but also for a given type of production.⁴²

Interdependences between a company and a territory radically change. We mean here not only the role of big enterprises in shaping its structure, but also groups of small companies understood as a specific organisation. These relations are manifested in space in various territorial forms of industry organisation, such as districts, technopoles, growth poles, etc.

Examining the relationship “territory – company” we aim to understand the reasons, for which enterprises select a particular location for their operations, referring us directly to the theory of location. Corporate location decisions are closely linked with the identification of factors of spatial competition which, in turn, leads to the analysis of territorial dynamics and organisation.

The definition of a territory clearly shows that we may not split these two types of relationships. It is the interaction between both industrial and spatial organisation that creates a territory. The need for a comprehensive analysis of these relationships results from the complexity and convolution of the contemporary world. It derives from the fact that: globalisation strategies are also diversity-based; living conditions and externalities have become important criteria for corporate location decisions; they contribute to interdependences between enterprises and their local environment, and finally, that enterprises are embedded in given area as a result of people getting attached to a territory, to its history and culture. All of these penetrate one another and make us consider the construct of territorial industrial systems as a combination of two organisational logics, which have and generate their own rationale: territorial organisation and industrial organisation.⁴³

Globalisation is based on the division of labour within a broad network but it may equally be associated with concentrations in privileged locations which create new relationships between a company and a specific region. Thus, we encounter the problem of “territorialisation” of companies, i.e. linking the success of a company with the success of a region and vice versa, arriving at a situation where the success of a region becomes a decisive factor of its competitiveness. This presents

⁴² A. Jewtuchowicz, *Terytorium*, op.cit., p.70.

⁴³ C. Foucarde, O. Torrès, *Les PME entre region et mondialisation: processus de “glocalisation” et dynamiques de proximite*, Les cahiers de l'ERFI, Universite Montpellier I, 2003, pp. 5-27; J.-B. Zimmermann, *Dynamiques industrielles: le paradoxe du local*, [in:] *Economie industrielle et economie spatiale*, eds. A. Rallet, A. Torre, Economica, Paris 1995, p. 162.

local authorities and politicians with a specific challenge. Their activities may no longer be restrained to a single act of location of a new enterprise; instead they must be continuous, conducive to the involvement of the enterprises in regional structures and in the valuation and renovation of local resources, in particular technological ones. In other words, authorities and politicians are confronted with the need to integrate global logic and strategies (industrial) with the logic of territorial development.

In classic approach, the economic analyses of the relations between enterprises and a territory were conducted in accordance with location theories (the role of distance or market areas). These theories turned out to be little useful in explaining location strategies of big industrial holdings. In globalisation, factors such as distance or market size have become less important.

The collaboration of an enterprise with the territory in which it is based is an issue considered by J.B Zimmermann in the categories of a company's mobility, which the author calls "nomadism" or its "loyalty" *vis-à-vis* a region.⁴⁴ According to the author, nomadism is an inherent feature of an enterprise and, more importantly, it is an indispensable feature, which allows companies to quickly respond to changes in competition in their environment. Companies, as J.B Zimmermann goes on to say, "... constrained by their production cycles and technologies and influenced by evolving competition in their industries, analyse their location-specific conditions."⁴⁵ It is a location-delocation game, which nowadays alarms political authorities and public opinion." Nothing may prevent an enterprise that decides to change its location.

When analysing the spatial behaviour of companies, P. Veltz⁴⁶ notices that strategies applied by them are influenced by their contradictory expectations. On the one hand, they want to exploit common resources linking themselves with a particular location but, on the other hand, they want to be independent in their location decisions. Based on that, we can distinguish two strategies adopted by the companies, referred to as the "entry-exit" strategy or as a "loyalty" attitude.

⁴⁴ J.-B. Zimmermann, *Dynamiques industrielles: le paradoxe du local*, [in:] *Economie industrielle et économie spatiale*, ed. A. Rallet, A. Torre, Economica, Paris 1995.

⁴⁵ J.-B. Zimmermann, *Nomadisme et ancrage territorial: propositions méthodologiques pour l'analyse des relations entreprises-territoires*, *Revue d'Economie Régionale et Urbaine*, No 2/1998, p. 212.

⁴⁶ P. Veltz, *Des lieux et des liens. Essai sur les politiques du territoire à l'heure de la mondialisation*; Éditions de l'Aube, 2008, p. 110 and further.

A similar distinction was adopted by I. Pietrzyk.⁴⁷ The author identified two development strategies that were followed by territorial units and economic operators: low and high. The “low” development strategy consists of the exploitation of, mostly traditional, location factors, e.g., the choice of production location motivated by low costs resulting from cheap labour, available infrastructure, raw materials, etc. In this case, the enterprises do not get involved in the development of a given territory and may easily transfer the production. Such attitude is equivalent to the “entry-exit” strategy.

The “high” development strategy may be related to the “loyalty” attitude. It consists of the building-up of a competitive advantage, which contributes to the generation of specific resources. The effort of the enterprises focuses on the development of collaboration (market and non-market-based) with other operators (companies, financial institutions, research, technical, educational centres, etc.), developing “neighbourhood” networks and social capital (based on relations) and the striving of companies to integrate with the local business community and their engagement in the development of specific resources.

In this context, an important element of the analysis is the fact that for the companies the costs of entry into a territory may not be separated from the costs of exit (immediate or future). On the one hand, the stability of the environment and numerous cooperative relationships that generate specific resources, reduce the uncertainty in companies’ operations and strengthen their competitive position. On the other hand, specificity reduces flexibility, restricts choices of location and determines development strategies and, having exceeded a certain threshold, may increase the risk of becoming a “prisoner” to the network of relationships, not only because of regulations but also as a result of social or social and political relationships.

J.-B. Zimmermann (1998, p. 218) stresses that we may not juxtapose nomadism and embeddedness of companies in a given area as they represent different moments of the same process. A territory is, on the one hand, necessary for the enterprises to develop technologies and implement production modifications and, on the other hand, it develops its own logic of development inscribed in the dynamics of change. Paradoxically, these relationships reveal smaller dependence of a territory from companies as the process accumulates resources, mainly technological ones, which enhances its cohesion and reduces sensitivity to crisis resulting from a company’s delocation.

⁴⁷ I. Pietrzyk, *Zasoby specyficzne jako determinanta konkurencyjności regionów*, [w:] A. Klasik (red.), *Konkurencyjność miast i regionów a przedsiębiorczość i przemiany strukturalne*, Prace Naukowe Akademii Ekonomicznej, Katowice 2001.

Such an approach enables a better understanding of the problem of mutual relationships and independence of a company and of a territory. An enterprise's independence is expressed by its ability to delocalise and to leave the location, in which it currently operates, while a territory's independence is its ability to accommodate losses relating to the company's exit. A territory's independence depends on the density and intensity of economic and social relationships among local actors, which are decisive for its own development dynamics.

The territorial strategy of "entry-exit" type is based on the minimisation of costs of both *entry* and *exit*. All efforts are directed towards making the location more mobile. There are two fundamental threats of the strategy which threaten the proper development of a territory: instability and the risk of falling into the spiral of competition (by reducing prices) with other entities pursuing the same policy.

The "loyalty" strategy maximises relationship-based externalities, which compensate the high costs of exit. It highlights institutional regulation and extra-market collaboration. The strategy also involves some risks. It may lead to over-specialisation, which provokes conformism and closure often leading to the loss of the local, specific environment.

1.1.6. The territory – a source of innovation

Nowadays, a territory is no longer identified exclusively as physical space interpreted by traditional economic location theories as a factor of development defined in terms of the cost of land, workforce or transport. Territory is no longer a location and accumulation of resources and capital but it is now an organisational form that reduces uncertainty and risks, provides increation and cumulates and transfers knowledge and skills. It is interpreted as a place where innovation resources and technological capabilities of operators are generated. Main development factors of contemporary economy such as increation, knowledge or innovation may be generated, exchanged and effectively exploited only in an appropriate regional environment. Territorial development mechanisms, together with operations of multinational corporations or R&D units, are considered important sources of innovation.

Relationships between the development of a territory and innovation are interdependent. A territory's development is defined by the resources of knowledge and innovation, while the development of the ability to innovate in individual operators is determined by the innovation capabilities of a territory. Creating innovation no longer depends exclusively on the individual abilities of an enterprise but on a network system of territorial nature. On the other hand, the development of a region and its competitive position is strongly conditioned by the innovativeness of its resources and the individual operators based within it. Sustainable competitive

advantage may be achieved only in regions where knowledge resources and innovation capabilities develop dynamically and continuously.

Innovation processes are territory-, system- and culture-specific. They place emphasis on collaboration and trust emerging from cultural context and regional community as a background for the creation, absorption and diffusion of knowledge and innovation. They suggest that a regional community generates many intangible resources that are decisive for the building of regional innovation capabilities. These resources are a specific territorial capital originating from social relations, norms, values and interactions inside a community. The presence of the capital helps entrepreneurs overcome shortages of market mechanisms or reduce market costs.

A region or, more precisely, its characteristics and specific potential help reduce the risk of innovation for a given economic operator, facilitate the absorption of knowledge and offer opportunities for interactive learning and exchange of experiences. A regional community, however, is not self-sufficient in developing innovative processes. Knowledge and innovation creation and exchange are based on networks and on internally generated and externally available potential. It needs openness and strong relations with the environment and depends on the readiness and ability of regions to collaborate.⁴⁸

Territory and territorial development mechanisms are perceived as sources of innovation and provide the basis for interpretation of modern concepts and models of innovation. Territorial mechanisms of innovation are explained in the context of an innovative milieu, learning region, regional system of innovation, innovation cluster or the above-mentioned proximity paradigm.

Among theoretical approaches to innovation, the leading role rests with the idea of an innovative milieu. It negates the assumption that innovation is largely determined by science and technology advancements. In this perspective, innovation is, to a large extent, the effect of the environment in which an entity operates, its source being the environment in which a company operates, not the company itself.⁴⁹

D. Maillat defines the innovative milieu (Fr. *milieu innovateur*), as a territorial organisation, which gives origin to innovation. It is a territorially-oriented collection in which interactions of economic operators, connected with their multilateral transactions, enhance learning and innovation. Consistently, they create externalities, specific for innovation, which lead to increasingly perfect forms of collective

⁴⁸ A. Nowakowska, Regionalny kontekst procesów..., op. cit., p. 37.

⁴⁹ Ph. Aydalot, Trajectoires technologiques et milieux innovateurs, [in:] Ph. Aydalot (ed.), Milieux innovateurs en Europe, Edytion GREMI, Paris 1998, pp. 10-11.

learning and resource management.⁵⁰ The main characteristics of an innovative milieu include: (1) territorial framework understood as a result of collective interactions, learning and adaptation, collective social and economic product; (2) specific organisational dynamics, which enable the flow of knowledge, including tacit knowledge, in social and institutional networks, and various types of social and vocational mobility; (3) learning dynamics, reflected in the ability and willingness of all actors, as an integral part of an innovative milieu, for rapid change and responding to changing conditions leading to a better adjustment of their operations to the requirements.⁵¹

The idea of a cluster is important for the analysis of innovation in regional contexts. Its essence consists in coexisting relations of collaboration and competition, present in different dimensions and among various entities. The precondition here is also local or regional embeddedness of the entities within the cluster and their main industries. A cluster is defined and created as a result of a concrete location in space, which generates its value and development potential.⁵² It is closely linked with the territory in which it operates, deeply embedded in social and institutional context typical of a concrete spatial and economic structure. Non-commercial relationships, based on the exchange of market information or tacit knowledge are decisive for innovation clusters.

A popular theoretical approach where we can trace references for creating and developing innovation is the idea of a “learning region”. It is based on studies and analyses of learning (individual and collective) in a region. Considerations focus on cooperation, which creates added value in the form of knowledge pools and mechanisms for learning. R. Florida, the originator of the idea, assumes that “learning regions” operate as warehouses of knowledge and ideas, providing a favourable environment and infrastructure in support of knowledge and information flow.⁵³

From the viewpoint of regional innovation policy, the idea of a regional system of innovation played a fundamental role. Generally speaking, it is a system of entities, interactions and events which, as a result of synergy, develops in a concrete territory and improves its ability to create, absorb and diffuse innovation. A re-

⁵⁰ D. Maillat, *Globalizacja, terytorialne systemy produkcyjne i środowiska innowacyjne*, Rector's Lectures, Cracow University of Economics, Krakow 2002, p. 11.

⁵¹ J. Chądzyński, A. Nowakowska, Z. Przygodzki, *Region i jego rozwój w warunkach globalizacji*, Wyd. Cedewu, Warsaw 2008.

⁵² See, e.g., Porter M. E. (1998) *Clusters and the New Economics of Competition*, Harvard Business Review, November-December, pp. 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; I. R. Gordon, P. McCanna, *Industrial cluster: complexes, agglomeration and/or social networks*, *Urban Studies*, Vol. 37/2000.

⁵³ Florida R., *Toward the learning region*, *Futures*, vol. 27 no. 5, 1995, p. 532.

gional system of innovation is a collection of interactions between universities and R&D units, economic operators, education, finances and public authorities, which supports adaptation and collective learning. Its operations are based on network links and an innovative milieu.⁵⁴ The innovative system is closely coordinated with public authorities, which provide the “link” for all individual operators.

Entities in a cluster, innovative milieu or a regional system of innovation have much higher abilities to absorb, produce and diffuse knowledge and innovation. Relationships in these structures and spatial proximity facilitate the creation and exchange of new ideas, concepts, and innovation. Spatial proximity enables continuous learning and the rapid dissemination of knowledge and innovation. Direct relations, often informal, enable monitoring an industry or competition and benchmarking one’s operations against competitors. These structures generate new businesses, the so called spin-off and spin-out businesses manifesting the maturity of these territorial forms of innovation.

These structures are embedded in their respective territories. Such territorial embeddedness is especially important for innovation and becomes institutional, structural and relationship-based.⁵⁵ Institutional embeddedness is about the impact of regulations and rules, taxes, subsidies, legal framework, infrastructure, education, research, labour market, etc. Structural embeddedness refers to the network and results from the density and sustainability of interactions between entities. Relationship-based embeddedness emerges in the context of large social networks and the strength of local ties, which translates into collaboration and relationships between entities. As a result, the way that territorial structures of innovation operate depends on the combination and coexistence of geography, social networks and relations between organisations.

1.1.7. Governance— a model of territorial management

Governance embodies a new way of thinking about development, which results from changing reality. The notion is rather flexible and changes depending on the area and scope of studies. The main question posed by the governance, to which we seek an answer, is: how should societies develop nowadays, in an open and globalised world? Governance is the outcome of democracy and describes communities of independent people, living within democratic systems in relative wellbeing and having numerous relations with the external world. Such a society calls for management methods that are different from the traditional ones. That

⁵⁴ A. Nowakowska, Regionalny system innowacji, [in:] K. B. Matusiak (ed), *Innowacje i transfer technologii*. Słownik pojęć, Polish Agency for Enterprise development, Warsaw 2008, pp. 302–303.

⁵⁵ B. Nooteboom, *Innovation, learning and cluster dynamics*, Discussion Paper No 44, Tilburg University, April 2004, p. 3.

society is based on dialogue and compromises, and implies a reality where everything is negotiable, where there is a genuine debate and where it is assumed that negotiations take place between equal partners and lead to reasonable compromises.

The term of governance is not entirely new. It was one of the key notions used by R. Coase and O. E. Williamson in their theory of transaction costs. Alongside a traditional hierarchy or market-based company they identified other indirect forms of partner collaboration, which enabled the reduction of transaction costs generated by the market. Additional papers on governance in enterprises always stressed two aspects: understanding an enterprise as a dynamic unity; and as a structure of regulations, which manages and coordinates transactions enabling the minimisation of costs by taking into account the interests of various groups of actors (shareholders, managers, employees...).

The concept of governance, places the factor analysis on the first place. In other words, it focuses on factors that contribute to the stabilisation of the economic and social structure. It concerns mostly customs and other institutional forms of interaction, which stimulate or restrict the actors in the process of cooperation and creation of specific combinations and ties⁵⁶.

The 1990s saw a period of heated debate on territorial “governance”, which formulated the theses on public development policies revealing features of a collective game (in terms of game theory), where mediation between competitive interests and cooperation of different organisations are the main determinants. These policies are founded on the cooperation of public organisations that are engaged in the exchange of resources and concentrated around a specific area of State intervention⁵⁷.

Under modern conditions of globalisation and glocalisation, local self-governances support some concrete interests and motivations of individual actors to combine resources and potential in a way that enables achieving common goals. As stressed by S. Barczyk, attention shifts from: “who receives what” to: “what is going on collectively and what should be done collectively”. “Thus, the key question is: How, under (the conditions of) high complexity and uncertainty of operations, can actors join resources to achieve common goals (within the community of common interests)?”⁵⁸.

⁵⁶ G. Benko, Les théories du développement local, Problèmes économiques, nr 2.4401, 1995, p. 23.

⁵⁷ B. Jouve, C. Lefevre, J.-M. Offner, La Gouvernance urbaine, (rapport intermédiaire), Laboratoire Techniques, Territoires et Sociétés, Ecole Nationale des Ponts et Chaussées, Nois-le-Grand 1995, p. 6.

⁵⁸ S. Barczyk, Przedsiębiorczy samorząd lokalny i jego instytucje, Wyd. Akademii Ekonomicznej, Katowice 2010, p. 157.

The nature of governance refers to indirect forms of regulation, neither purely commercial nor purely public. Considering all aspects of actors' operations – economic, social and political – it helps to articulate private interests and identify the essence of public good. “The art of governance consists of merging particular and general interests to arrive at synergy effects. The point is to make acting in favour of common goals conducive to the achievement of individual goals and, by favouring individual interests, to strengthen the development capabilities of a region”⁵⁹. The involvement of institutions, in particular local public institutions, guarantees coherence between economic efficiency and social justice. In other words, governance focuses on institutions' skills to negotiate and enter into transactions (which must involve public, private and social partners) for the development and implementation of their development policies.

Governance is not the synonym of management. Both notions refer to the expression of will, to goal-based activities and to the system of the rules of the game. However, the idea of management is connected to the official power that is equipped with enforcement measures (e.g. police), which guarantee the execution of the adopted policies. Governance results from the implementation of common goals. The goals may or may not be inscribed in legal and formal mechanisms. Governance is about behaviours of human organisations. It takes account of official regulatory mechanisms but it also covers the informal sphere, through which entities and organisations accomplish their own interests. It is a system of rules based on the game of relationships among humans and on the laws and sanctions resulting from it.⁶⁰

Governance is defined as a system of organisation and maintenance of competition, where emphasis is placed on creativity. Co-management is not only about identifying and delivering goals, it is also about the development and protection of the development game. The point is not just to manage but also to decide on the rules of the game and to guarantee that they are applied properly. The State is no longer the beginning (identifying rules) and the end (final supervision of their application) of the social processes. Control mechanisms, instead of being completely imposed by the State may, at least partly, be chosen by their users.⁶¹

The notions of management and co-management are interrelated. They differ mostly with respect to the environment in which they develop. Governance is the child of globalisation and democracy, which by bringing civic freedom and liberties gives them the opportunity to decide upon their own development. For governance the problem is to stimulate and manage diversity, which becomes the fac-

⁵⁹ Ibidem, p. 161.

⁶⁰ Ph. M. Defarges, *La gouvernance, Que sais-je?*, Paris 2008, p. 31.

⁶¹ Ibidem, pp. 32-33.

tor of creativity and positive changes. It negates hierarchy, which does not stand the test of time in the era of rapid changes. The State develops norms and rules in management and co-management policy should ensure the correctness of the rules of the development game⁶².

Governance highlights network, partner, innovative, and process-based development. These may be interpreted as a set of various circumstances within which actors create their own spaces. These spaces are mobile and open, and they are often based on maintaining numerous and evolving relations.

Cooperation and participation are the primary features of governance (and democracy) and they give an individual the opportunity to get involved in development. According to governance, a human being is not a "material" to be used, but an asset, whose desires should be supported and met. The participation of individuals is thus indispensable. In democracy participation is ensured by elections, associations and media. In governance it is ensured by the involvement in common projects, in which everybody may and should benefit.

Modern democracy includes a contradiction that is hard to eliminate. On the one hand, democracy is depicted as a society of freedom, which is the precondition for creativity; a free man is much more productive than a constrained one. On the other hand, democracy may not operate and survive if individuals do not surrender part of their freedom in return for higher values.

Governance faces the same dilemma. It is defined as constant negotiations between equal interests and various concepts. Co-management is based on rules of the game, which are perceived and integrated as a result of understanding the principles of common actions. They become a sanction, a stimulus or a privilege without the need to be formalised. We are speaking then of the rules of social dialogue and of routines and procedures resting within the area of habitual and customary actions.⁶³

Matching and coordinating resources takes place in a concrete space within a territory. Governance needs a space for the game, an arena for relationships and transactions among actors. In governance, besides public institutions, there are independent agendas, which are collective arbitrary and supervisory institutions.

Governance needs transparency. Transparency is one of the dimensions of the present democracy. In co-management everything must be discussed and negotiated. Hence the importance of audits, rating agencies and national and interna-

⁶² Ibidem, pp. 30-31.

⁶³ See Ph. M. Defarges, *op. cit.*, pp. 62-65; S. Barczyk, *Przedsiębiorczy samorząd ...*, *op. cit.* pp. 162-163.

tional surveillance agencies tasked with monitoring compliance (for example compliance with environmental regulations).

As we read in S. Barczyk “The major challenge facing the participants of the game may be formulated as a question: how can we update the efficiency of exercising power in opaque realities of territorial institutions. The system of powers understood in structural terms, based on democratic political mandate of the local government must be reinterpreted (...). Instead of asking, what a local self-governance decides based on its mandate, we should legitimately ask: do, and if yes how, the actors in the local development game combine their resources under the conditions of high complexity and uncertainty, and, whether they together develop and achieve identified goals.”⁶⁴

Governance becomes a way of exercising power and delivering development policy, which involves more and more stakeholders in the governance processes. It is the result of various ways of planning and delivering development goals in a given territory, worked out by citizens and private and public organisations. The process is continuous and reformulates divergent (often contradictory) aspirations of individual groups of stakeholders to select common goals, which will enable common actions.

In governance, entities, which identify themselves with a given space (not administrative structures), actively participate in shaping the development policy (through common actions). A territory defines the regulatory mode and coordination of the behaviours of its participants. It is a new alternative to the classical way of spatial management, a new way of acting together and developing relations between economic system and local politics. It is, on the one hand, co-management through cooperation and, on the other hand, co-responsibility of all the actors in the territory for its development.

1.2. Conditions for development, objectives and benefits of LPS

Operating conditions for LPS evolve in respect of time and space. At present, they are determined mostly by the network development paradigm and by the logic of innovation processes. Networks have become the basic form of organisation, their characteristics impact the system dynamics, scope and scale of operations and the efficiency of cooperation among entities within the system. On the other hand, market requirements make market participants maintain innovation capabilities at an appropriate level. The overall complexity of innovation (the fact that it is non-linear) forces the engagement and contribution of many participants. The processes are of a territorial nature, and innovative and creative business circles are nec-

⁶⁴ S. Barczyk, *Przedsiębiorczy samorząd ...*, op. cit. p. 165.

essary as a framework for building local production systems. The presence and smooth performance of systems (not only of individual economic operators) are most often decisive for the competitiveness of the entire local structure. Local production systems determine the competitive advantages of territorial units bringing numerous benefits for both the local system and its participants.

1.2.1. The network as an LPS organisational method

Contemporary economies are dynamic and versatile due to external rather than domestic circumstances. Though meta-systems at a global scale are still a futuristic idea, globalisation has certainly revolutionised interdependences among economic systems of individual countries. New techniques and technology enable the exchange of almost anything between any two persons and locations. The two main dimensions – time and space – have not disappeared in an IT society but have become subordinated to the logic of a network and to the structure of the flow of capital, technology and innovation. Space, as observed by R. Domański, with the advancements of the social and economic progress, has become “a relational space, able to process impulses or to refract them, to disseminate innovation or to create obstacles to them, to adjust to the dynamics of processes in which it is involved. (...) among companies, administration, scientific institutions and social organisations; value added is created together with new resources”.⁶⁵

To respond to the challenges of our times with respect to competitiveness and development of regions, entities operate in network-based arrangements. A network, as pointed out by A. Jewtuchowicz, “is a collection of selected relations with chosen partners that forms part of companies’ market relations. The main driving force behind it is the wish to reduce the uncertainty of operations.”⁶⁶ New nodes of the network emerge when necessary, depending on the adopted strategy.

Many theoreticians in their considerations of the milieu use the term “network”, arguing that it is the primary form and way of its organisation.⁶⁷ In this context, a milieu is perceived, firstly, as a network of local actors, among who we can list producers of goods and services, scientists, politicians and other entities operating in the region. Secondly, the milieu is based on a network that is a node in an *input-output* system. A network embedded in the local milieu offers the possibility to control and coordinate actions necessary to create innovations that would be

⁶⁵ R. Domański (2000), Regionalny poziom gospodarki uczącej się, „Czasopismo Geograficzne” LXXI, 3–4.

⁶⁶ A. Jewtuchowicz (1997), Środowisko przedsiębiorczości, innowacje a rozwój terytorialny, Department of Regional Economics and Environmental Protection of the University of Lodz, Publishing House of the University of Lodz, Lodz, p. 14.

⁶⁷ F. Moulaert, F. Sekia (2003), Territorial Innovation Models: A Critical Survey, Debates and Surveys, „Regional Studies” vol. 37.3, p. 298.

important and noticed by the market, innovations that are decisive for the competitiveness of the milieu and its actors. Innovations are milieu-determined but, at the same time, the milieus exist in regions where innovations are created.⁶⁸

Networks can take different forms and natures. "Links between elements in a network structure are nothing but channels of direct communication for people who are task, not power, oriented. A network is created to acquire and process knowledge as quickly as possible. Multilateral and mutual increation is a precondition for cooperation, i.e. for the existence of a network".⁶⁹ A concentration of entrepreneurship, competence and knowledge provides positive synergy effects to each and every one of the collaborating parties. A network as a flexible and open method of coordination with no rigid frontiers, allows for external effects, such as benefits from the agglomeration of companies for the society of the region.

In a regional development context, the notion of a network is closely connected to an entrepreneurial network, which takes different forms and constantly evolves. In general terms, networks can be divided into: intra-organisational and inter-organisational ones.⁷⁰ R. Reich distinguishes several of the most common entrepreneurial networks, such as: independent profit centres, external partnerships, internal partnerships, franchising or pure agency arrangements.⁷¹ These are examples of two types of networks: companies in a network and networks in companies.

D. Maillat identified some types of SME networks based on their origin. Firstly, he mentioned a possibility for a network to be built-up around a big company. Secondly, according to him, a territorial network may emerge as an outcome of local traditions. Thirdly, we may speak of a network created by a big company as a result of its, deliberately applied, so-called decomposition strategy. Finally, he concluded that a network may be created by the so-called incubation, where business incubators, technology and science parks, other companies, local authorities and other organisations act as incubators.⁷²

⁶⁸ M. Storper(1997), *The regional world. The territorial development in global economy*, Guilford Press, p. 17.

⁶⁹ Cz. Sikorski (1998), *Ludzie nowej organizacji. Wzory kultury organizacyjnej wysokiej tolerancji niepewności*, Publishing House of the University of Lodz, Lodz, p. 17.

⁷⁰ Cz. Sikorski (1998), *Ludzie nowej organizacji. Wzory...*, p. 27.

⁷¹ R. B. Reich (1996), *Praca narodów. Przygotowanie do kapitalizmu XXI wieku*, Adam Marszałek Publishing House, Torun, pp. 79–80.

⁷² D. Maillat (2001), *Innovation and Territorial development*, [in:] R. Cappellin, P. Nijkamp, *Spatial Context of Technological Development*, Gower Publishing Company, Brookfield 1990, quoted after: H. Godlewska, *Lokalizacja działalności gospodarczej. Wybrane zagadnienia*, Higher School of Trade and International Finance, Warsaw, p. 42.

The theory of the network is also closely linked with the theory of polarisation.⁷³ It is particularly important from the viewpoint of contemporary regional convergence or rather, for many regions, from the viewpoint of the conclusion, that such a convergence does not exist. In these circumstances, a network may be an efficient infrastructure for the transmission of regional development. According to P. Veltz “the growth of poles depends on their ability to join the mainstream and networks, to reap the benefits connected with points where networks cross, to create nodes, etc.”⁷⁴ Thus, the main determinants of an effective network are: flexibility (adjustment capacity) and complementarity of its elements. It is typical of a network that between its nodes (besides the formal, regular or relatively enduring relations) there are often emergency alliances and informal contacts.

Network structures are encouraged and motivated by the drive of individual operators to achieve a competitive advantage. Networks facilitate communication and generate diverse and dispersed technological innovation, production, organisational, and managerial competence in one place and time. It is rare for a single company, especially of a moderate size, to find all of these competences complete, particularly in light of the requirements of the global market. These competences are the starting point for achieving competitive advantage on the market.⁷⁵ Thus a network is “an organisational arrangement of companies”, which enables them to deliver three fundamental objectives:⁷⁶

1. benefiting from economies of scale through the coordination of production, marketing, and R&D with other network participants;
2. taking control over the market of complementary products - an indispensable element to be able to respond quickly to external changes;
3. acquiring strategic control of directions in which the complementary production develops, which enables the constant innovation of own products.

A network mitigates, or completely eliminates, the hierarchy among its participants and replaces it with a new organisational horizontal structure, where the economic success of a company is perceived as a resultant of elements such as: partnership, cooperation, mutuality, and business environment. “Network is a global concept, with an advantage, however, compared to the local approach, as it accommodates small and medium dimension, includes it in all of its characteris-

⁷³ „Polaryzacja to sieć powiązań (...)” according to definition by J. R. Boudeville (1972), *Aménagement du territoire et polarisation*, Editions M-Th. Genin, Paris, p. 68.

⁷⁴ J. Grzeszczak (1999), *Bieguny wzrostu a formy przestrzeni spolaryzowanej*, Prace Geograficzne nr 173, PAN Instytut Geografii i Przestrzennego Zagospodarowania im. St. Leszczyckiego, Continuo Publishing House, Wrocław, p. 52.

⁷⁵ Cz. Sikorski (1998), *Ludzie nowej organizacji...*, p. 17.

⁷⁶ A. Jewtuchowicz (1997), *Środowisko przedsiębiorczości...*, p. 14.

tics, offers it the possibility to communicate, to come out of isolation and to integrate with networks of the contemporary world.”⁷⁷ The building and survival of the network organisations is based on the mutual benefits of their elements. This is accompanied in key functions identified in the theory of network, such as reciprocity and interdependence but, at the same time, loose of coupling and power.⁷⁸

1.2.2. Innovative and creative entrepreneurship milieus as a condition for LPS development

Dynamics and social and economic development of a territorial unit are determined by the competitiveness of its economic operators. It does not mean, however, that the environment is passive *vis-à-vis* the economic operators based in a given region. The fact is that location decisions are nowadays strictly dependent on the quality of the environment and on the development of the entrepreneurial milieu. The presence of systems such as networks of businesses, business environment institutions, public institutions and relationships among them, availability of adequate labour resources, technical and social infrastructure ensuring appropriate living standards, are all decisive factors for the attractiveness of a business location. Already at the beginning of the 1990s G. Benko highlighted the importance of non-material factors that impact on the attractiveness of investment locations, pointing to aspects such as: human capital, universities and research centres, the “charms of landscape”, transport infrastructure, benefits of agglomeration, services and political and business climate.⁷⁹ Their presence improves the potential competitive opportunities of companies and in fact provides the competitiveness for the entire system, milieu or region. The idea of entrepreneurial milieu is based on a partnership among three fundamental groups of actors: public sector, private sector, and civic sector. Partnership is based on and reinforced by the ability to maintain the dialogue among these groups.

Intangible properties of a given location as business location factors were noticed in the context of the evolutionary changes in the Ford’s system of production organisation aimed at flexible specialisation. In literature, A. Marshall is usually mentioned as the promoter of the idea of a milieu as in his work *Principles of Economics* he formulated the concept of an industrial district. By identifying its

⁷⁷ J. Arocena (1996), El desarrollo local. Aspectos teóricos. Condicionantes. Actores involucrados, Decano de la Facultad de Ciencias Sociales y Comunicación de la Universidad Católica, exposición realizada en el seminario regional Globalización, desarrollo local y las cooperativas, Florida, 27/28.

⁷⁸ F. Moulaert, F. Sekia(2003), Territorial Innovation Models: A Critical Survey, Debates and Surveys, “Regional Studies”, vol. 37.3, p. 298.

⁷⁹ G. Benko (1993), Geografia technopolii, PWN, Warsaw, pp. 19–20.

characteristics, he laid the foundations for the entrepreneurial milieu. He concluded that “the mysteries of the trade and industry become no mysteries; but are as it were in the air, and children learn many of them unconsciously. Good work is rightly appreciated, inventions and improvements in machinery, in processes and the general organisation of the business have their merits promptly discussed and disseminated: if one man starts a new idea, it is taken up by others and combined with suggestions of their own; and thus it becomes the source of further new ideas and innovation.”⁸⁰ Although entrepreneurs and organisations are fundamental for local development dynamics, it is the milieu that is needed to explain the developmental processes, especially when we speak of knowledge-based development.⁸¹ A. Marshall, drawing attention to the properties of a milieu, also stressed that it generates an industrial climate which effectively impacts production capacities and economic growth by means of specialisation and, most of all, due to the uniqueness of local human and social capital.

D. Maillat, O. Crevoisier and B. Lecoq define the entrepreneurial milieu as a localised collection, shaped and integrated within a network, equipped with material (e.g. infrastructure and enterprises) and immaterial (e.g. skills and knowledge) resources, disposed and managed by many local actors (companies, public and private institutions).⁸² “The entrepreneurial milieu is thus a spatial notion where the proximity of operators is its causative factor” but it does not suffice. It is also a cognitive, social and economic category.⁸³

M. Storper adds that it is a diversified system of regional institutions, norms, and practices leading to the improved innovativeness of participating entities.⁸⁴

A milieu has its own culture which results from its long-lasting tradition and history. As a product of knowledge and skills, a milieu is characterised by the presence of a localised system linked with cooperation – competition type of relationships between its actors.⁸⁵ Cooperation – competition relationships – are, on the

⁸⁰ A. Marshall (1920), *Principles of Economics. An Introductory Volume*, Edit. 8. London: The MacMillan Press, p. 271. For more see paragraph 1.5. (by M. Sokołowicz)

⁸¹ P.-A. Julien (2007), *A Theory of local entrepreneurship in the knowledge economy*, Edward Elgar Publishing, UK, p. 73.

⁸² A. Hsaini (2000), *Le depassement des economies d’agglomeration comme seules sources explicatives de l’efficacite des systemes de production territorializes*, *Revue d’Economie Regionale et Urbaine* n° 2, p. 224.

⁸³ A. Ochojski, B. Szczupak, T. Zieliński (2006), *Regionalne środowisko przedsiębiorczości. Problematyka badawcza*, [in:] *Przedsiębiorczość i konkurencyjność a rozwój regionalny*, ed. A. Klasik, *Prace Naukowe Akademii Ekonomicznej w Katowicach*, Katowice, p. 306.

⁸⁴ M. Storper (1997), *The regional world; The territorial development in global economy*, Guilford Press, p. 17.

⁸⁵ A. Hsaini (2000), *Le depassement des...*, p. 224.

one hand, based on market logic but, on the other hand, they are the result of formal and informal norms connected with the proximity of the actors, their common customs, traditions and conventions deeply rooted in the system of mutual expectations of partners operating in the same milieu.

Such interpretation is supplemented by A. Malmberg, who invokes the features of a milieu: production structures, technological infrastructure, culture, and institutions. According to him “a milieu can be perceived as a network of entities (other companies or organisations) with which a company cooperates or as general framework of a company’s operations: institutional structures, social merits, political culture, etc.”⁸⁶

A milieu, as pointed by A. Jewtuchowicz, is not restricted by administrative divisions “coherence is explained by a clearly identified and place-specific set of behaviours. It has its own culture, technical knowledge, norms and values linked to economic activity (...) It has its own operational logic and learning capabilities”.⁸⁷ “Milieus emerge as social and economic creations which, when being set up, generate the economic development dynamics of the region. In other words, milieus are organised more efficiently when they are more territorialised. Organisation dynamics of local actors depends on the dynamics of local milieu”.⁸⁸

The entrepreneurial milieu is identified with the territory representing a certain degree of coherence based on:⁸⁹

- shared behaviour norms resulting from cultural background;
- institutional similarities;
- economic structure;
- collective organisation and coordination of actions.

The coherence results from both formal and informal interactions between economic operators and surrounding institutions. The local nature of social relations and social consensus importantly reinforce the milieu by shaping common industrial objectives, jointly developed or similarly applied ways of solving economic

⁸⁶ J. Grzeszczak (1999), Bieguny wzrostu a formy przestrzeni spolaryzowanej, “Prace Geograficzne” no. 173, PAN Instytut Geografii i Przestrzennego Zagospodarowania im. St. Leszczyckiego, Continuo Publishing House, Wrocław, p. 57.

⁸⁷ A. Jewtuchowicz (2001), Rozwój, środowisko, sieci innowacyjne i lokalne systemy produkcyjne, [in:] K. B. Matusiak, E. Stawasz, A. Jewtuchowicz, Zewnętrzne determinanty rozwoju innowacyjnych company, Department of Economics of the University of Lodz, Lodz, pp. 78–81.

⁸⁸ M. Storper (1997), The regional world..., p. 17.

⁸⁹ A. Malmberg (2000), Industrial geography: agglomeration and local milieu, Progress in Human Geography 20,3, 1996, pp. 394–397; D. Lyons, Embeddedness, milieu, and innovation among high-technology companies: a Richardson, Texas, case study, Environment and Planning A, vol. 32, p. 893.

and technical problems. The entrepreneurial milieu “coherently joins the system of production, technical culture and economic agents. Coherence is explained as clearly identified behaviours specific for a given group. Entrepreneurship, organisation, corporate behaviour, the way technology is applied, understandable market rules and skills are integral elements of the milieu and preconditions for its development.”⁹⁰

For the economic operators the value of the entrepreneurial milieus lies in their usefulness and practical mindset. These features have a highly efficient impact on the innovation of operators in the milieu. P. Aydalot highlighted that a well-organised milieu can generate innovations and take over the technical progress. This is when milieus become incubators of innovations. Researchers stress that milieus are not created by companies but rather adequately developed local milieus are the precondition for establishing of companies. Such a viewpoint was examined and elaborated in the mid-1980s by researchers from the GREMI group⁹¹. At that time, the concept of a milieu was considered against the dynamics of innovation processes and the term *innovative milieu* was formulated. The term resulted from analyses designed to explain how good institutional support in a region, including R&D centres, public institutions and companies that cooperate among themselves, may enhance the innovativeness of a region and, consequently, its development. The innovative milieu has been defined by GREMI as “the complex network of mainly informal social relationships in a limited geographical area, often determining a specific external “image” and a specific internal “representation” and sense of belonging, which enhance the local innovative capability through synergetic and collective learning processes”.⁹² The theory emerged from the observations of GREMI who demonstrated that most innovations are non-

⁹⁰ A. Jewtuchowicz (2001), Strategie przedsiębiorstw innowacyjnych – współpraca czy konkurencja?, „Zeszyty Naukowe Politechniki Poznańskiej, Organizacja i Zarządzanie” no. 32, Konkurencyjność podmiotów gospodarczych w procesie integracji i globalizacji, p. 197 [after:] Researd’innovation et milieux innovateurs: un paripour le developpement regional, (1993) ed. D. Maillat, M. Quevit, L. Senn, EDES Neuchatel, pp. 2–13.

⁹¹ GREMI (Groupe de Recherche Européen sur les Milieux Innovateurs) – European research group into innovative entrepreneurial milieus. Studies on territorial location of innovation and innovative milieus were also thoroughly discussed in works in the field of “Geography of Innovation” (Z. Acs, D. Audretsch, M. P., Feldman).

⁹² M. Fromhold-Eisebith (2004), Innovative Milieu and Social Capital – Complementary or Redundant Concepts of Collabouration – based Regional Development?, European Planning Studies, vol.12, Carfax Publishing, na podstawie: Camagni, R. (1991) Introduction: from the local 'milieu' to innovation through cooperation networks, in. Camagni R (Ed.) Innovation Networks: Spatial Perspectives, pp. 1–9. London: Belhaven Press; A. Nowakowska, (2011) Regionalny wymiar procesów innowacji, Publishing House of the University of Lodz, Lodz, pp. 57–66; A. Nowakowska, Z. Przygodzki, M. Sokołowicz, (2011) Region w gospodarce opartej na wiedzy. Kapitał ludzki, innowacje, Korporacje transnarodowe, Difin, Warsaw, pp. 61-62.

linear and are composed of dynamic interactions which, as a result of feedbacks, create and disseminate innovation.⁹³

The milieu, as a space of regulations, is mostly important for small and medium-sized economic operators, which often lack financial, organisational and technological capabilities to build-up and sustain cross-border business relationships, which are decisive for competitiveness (especially in a strongly globalised economy). Local milieus are fundamental for the creation of competitive potential to be discounted on international markets. In this case, we can observe a symbiosis between the local and global sphere where there are both large and small companies among the actors. Values are built by local operators and actors are legitimated by entrepreneurial circles. This is the framework that gives rise to different forms of production organisation with strong territorial links which, as pointed out by D. Maillat, are also involved in global activities. "(...) Local dimension supports global dimension through territorialisation".⁹⁴ The presence and development of global networks is based in big urban centres. These milieus are, firstly, able to generate leaders who can effectively compete on external markets and secondly, they are attractive locations for economic operators acting globally. In both cases, the milieus get in touch with the global dimension, which provides them with technologies and innovations that are preconditions for long-term development. D. Maillat and N. Grosjean, by making a reference to "embeddedness" emphasise that territorial embeddedness, perceived as a form of organisation, is one of the determinants of global processes.⁹⁵ J. C. Perrin defined the phenomenon as "territorialisation", underlining that a company's identification with the realities of the local environment and their awareness of being a part of local space are important elements in the accumulation of local (specific) resources and, as such, they may be decisive for the development of a region.⁹⁶

M. Storper is of the opinion that the concept of a milieu is a territorial version of the term "embeddedness" as used by the American economist and sociologist M. Granovetter.⁹⁷ The term reflects the interdependence between the economy, economic growth and social relationships. In this case, however, these are not identi-

⁹³ A. Jewtuchowicz, (2005) *Terytorium i współczesne dylematy jego rozwoju*, Publishing House of the University of Lodz, Lodz, p. 141.

⁹⁴ D. Maillat, (2002) *Globalizacja, terytorialne systemy produkcyjne i środowiska innowacyjne*, Rector's Lectures, Akademia Ekonomiczna w Krakowie, Kraków, s. 1; A. Jewtuchowicz, (2005) *Terytorium i współczesne dylematy jego rozwoju*, Publishing House of the University of Lodz, Lodz, p. 42.

⁹⁵ D. Maillat, N. Grosjean (1999), *Globalisation and territorial production systems*, [in:] *Innovation, networks, and localities*, M. M. Fischer, L. Suarez-Villa, M. Steiner (editors), Springer, p. 50.

⁹⁶ J. C. Perrin (1995), *Dynamika przemysłowa a rozwój lokalny. Bilans w kategoriach środowisk*, *Studia regionalne*, Akademia Ekonomiczna w Poznaniu, Poznań, no. 1.

⁹⁷ M. Storper (1997), *The regional world...*, p. 17.

cal concepts as M. Granovetter did not initially refer to geographical space and spatial proximity in his construction. However, the concept is not in opposition to other elements, on the contrary, spatial dimension complements it in a coherent way.⁹⁸ Embeddedness refers mainly to the “role of specific personal relations and networks thereof (rather than general economic merits) and institutional agreements and economic relationships based on trust between given enterprises and within them”.⁹⁹ Embeddedness is based on trust resulting from positive experiences that have led to partners’ mutual benefits. These merits increase in importance as it turns out that embeddedness is critically important in industries where market competition is based on new technologies and high quality products.¹⁰⁰ In these industries, product life cycles are short and they require the engagement of costly R&D activities for economic operations while the main strategic resource – knowledge – is often hidden and unarticulated.¹⁰¹ The local embeddedness of companies reinforces the milieu by developing the sense of common economic goals and social understanding, common ways of perceiving economic and technical challenges, and a common approach to problem solving. Social and economic relations in a territorial dimension determine the development of institutional and informal support to innovation, and reinforce human resources by strengthening skills and qualifications and by the dissemination of articulated and tacit knowledge. Employers become a part of the local milieu rather than of a given company. The milieu impacts the development of technology through learning by doing, applying and interacting, which raises the innovation capabilities of local actors.¹⁰²

In the 1990s, attention was also drawn to the fact that some milieus determine the development of their regions despite the absence of an acknowledged level and significant scale of innovativeness. The observation referred mainly to milieus based on traditional sectors and industries generally considered to have a low level of innovativeness (in respect of the engagement of technology and R&D for the development of their main products, such as construction, retail banking, education, and real estate). Studies in this field (conducted since 2007 by the NESTA group) demonstrated that certain areas of activity, commonly considered mature and therefore of little impact upon development, should be re-appreciated as they

⁹⁸ D. Lyons (2000), *Embeddedness, milieu, and innovation among high-technology companies: a Richardson, Texas, case study*, *Environment and Planning A*, vol. 32, p. 892.

⁹⁹ D. Lyons (2000), *Embeddedness, milieu, and...*, p. 892.

¹⁰⁰ *High Technology Industry and Innovative Environments: The European Experience*, (ed.) P. Aydalot, D. Keeble, Routledge (1988), London/ New York, p. 57–60.

¹⁰¹ M. Porter (2001), *Porter on Competition*, PWE, Warsaw, p. 282.

¹⁰² A. Markusen (1996), *Sticky places in slippery space: a typology of industrial districts*, “*Economic Geography*”, vol. 72, issue 3, pp. 295–299.

may also create innovations that are difficult to measure, but allow for competing on the market. The conclusion is that the so-called mature sectors are also productive in a knowledge-based economy. However, innovations in these sectors are not identified in a classic way, as they represent the features of *hidden innovation*.¹⁰³ These conclusions also accompany the high importance of the creative sector for regional development, where creative thinking and its effects are hard to capture but are valuable for creating innovations.¹⁰⁴ These observations, however, provided a premise for the re-interpretation of the concept of “smart specialisation” currently adopted as one of the pragmatic ways of implementing the EU cohesion policy.¹⁰⁵

In parallel to the analyses of the entrepreneurial milieu, studies have been conducted on another type of a milieu, which nowadays is listed as one of preconditions for regional innovation/innovativeness. In the 1980s, G. Törnqvist in his essay entitled “Creativity and the renewal of regional life”¹⁰⁶ introduced the notion of a creative milieu. According to the author, the presence of three types of resources is characteristic for the areas included in the creative milieu:

- a large body of innovation readily transferable within such an area;
- a body of knowledge and the capability to accumulate it over time;
- expertise in specific types of activities.

The simultaneous presence of the above resources and capabilities within a given territory leads to the development of the fourth resource, i.e. creativity. This is interpreted as a creative capacity leading to the development of new forms and values, both material and immaterial¹⁰⁷. Creativity is about divergent thinking, which generates ideas. Innovation is about convergence focused on the selection and implementation of new ideas into economic processes. Creativity may be identified with the production of ideas, while innovation means the ability to im-

¹⁰³ Hidden Innovation. How innovation happens in six ‘low innovation’ sectors, Research report: June 2007, NESTA (National Endowment for Science, Technology and the Arts) p. 20; C. Abbott, P. Barrett, L. Ruddock, Sexton M. (2007), Hidden innovation in the construction and property sectors, RICS Research paper series, vol. 7, n° 20.

¹⁰⁴ Besides creative sectors, the concept of hidden innovation indicates that sectors considered mature and, as such, of little impact upon development processes, should be re-appreciated. These sectors are also productive in a knowledge-based economy but innovations are not identified in a classic way as they are hidden innovations. Hidden Innovation. How innovation happens..., p. 20; C. Abbott, P. Barrett, L. Ruddock, M. Sexton (2007), Hidden innovation..., op. cit.

¹⁰⁵ Research and Innovation Strategies for Smart Specialisation, Cohesion Policy 2014–2020, European Commission

¹⁰⁶ G. Törnqvist (1983), Creativity and the renewal of regional life, [in:] *Creativity and Context [ed.]*, A. Buttner, Lund Studies in Geography. B. Human Geography, no. 50.

¹⁰⁷ G. Törnqvist (1983), Creativity and the renewal...

plement them.¹⁰⁸ Creativity is the precondition for innovation but it is innovation that maximises the human potential of cities and regions.¹⁰⁹ In this perspective, both creativity and innovation have their economic value.¹¹⁰

Ch. Landry defines the creative milieu as a part of a city or a region, which is a creative cluster. It is a location with all the hard (technical) and soft (social) infrastructure conducive to the dissemination and transfer of ideas and inventions. The creative milieu is a place where entrepreneurs, intellectuals, artists, clerks, etc. have appropriate conditions for cooperation, where face-to-face relations help create new ideas, products, services and institutions, which can importantly contribute to economic success¹¹¹. “The new approach to the development of economy centres in territories leads to the creation of creative cities and creative clusters. (...) Creative cities and regions are areas where sharing knowledge and experience takes place relatively free of limitations.”¹¹²

Developed (mature) entrepreneurial milieus are able to create systems. Proportionally to their scope of impact, they may generate local production systems which, due to their nature, are often called territorial production systems.¹¹³ The notion of *territorial production systems* is interpreted in broader terms as it is not only limited to the local dimension but also covers the region. In English besides the term *local production systems*, nowadays the notion of *local clusters* is used interchangeably.¹¹⁴

1.2.3. Objectives and benefits of LPS

The milieus evolve, as well as the market conditions (demand and supply, companies' objectives but also the policy of business environment institutions), change. However, the previous studies of local production systems let us distinguish the frequently recurring objectives, which determine the organisation of LPS and help

¹⁰⁸ Landry Ch., Bianchini F., The creative city, Demos 1995, Paper No. 12, p. 20

¹⁰⁹ Creative Economy Report, op.cit.

¹¹⁰ Throsby D. Economics and culture, National Centre for Culture 2010, pp. 89-100

¹¹¹ Landry Ch. (2008), The creative city: a toolkit for urban innovators, USA–UK.

¹¹² K. Petrikova, A. Vanova, K. Borsekova, The role of creative economy in Slovak Republic, Springer-Verlag London 2013, AI & Soc DOI 10.1007/s00146-013-0508-5

¹¹³ Differences result from the two terms used in French literature on the subject: les systèmes productifs locaux and les systèmes productifs territorialisés, thus, we may speak of territorial or local production systems (TSP or LSP).

¹¹⁴ See. A. Jewtuchowicz, I. Pietrzyk, (2003) Rozwój terytorialny – Teoria a polska rzeczywistość (Przykład regionu łódzkiego), in: A. Klasik (ed.), Zarządzanie rozwojem lokalnym i regionalnym w kontekście integracji europejskiej, Biuletyn KPZK, Zeszyt 208, Warsaw; J. Chądzyński, A. Nowakowska, Z. Przygodzki, (2007) Region i jego rozwój w warunkach globalizacji, Wydawnictwo Fachowe Cedewu, Warsaw, pp. 183-191.

to achieve benefits of their members. The objectives are focused on the following groups¹¹⁵:

- research and relations;
- political operations;
- commercial cooperation;
- education and training;
- innovations and technologies;
- market expansion;
- access to specialised resources of institutions in the milieu;
- access to increation and market analyses;
- attracting new talents (intensified effects of concentrating resources strategic for an industry and for a region).

These objectives differ in respect of time, space and industry. Usually, the more innovative a sector is, the more often the objectives focus around the acquisition and use of knowledge and commercialisation of innovation. However, in sectors dominated by the so-called mature industries (considered to be of low innovativeness) the objectives also evolve over time and focus on improving the efficiency of the use of the intellectual capital in the milieu. This is well evidenced by the results of a cyclical study conducted in Poland entitled *Benchmarking of clusters*. Its first edition took place in 2008, the second in 2012. We may observe that the objectives of young (usually of low innovativeness) clusters were not binding in their nature, as they focused mostly on projects for joint promotion and fundraising. An analogous study of 2012 shows an improved quality of the social capital in such systems. As a result, at present the most frequently quoted objective includes joint projects leading to innovative solutions and new technologies, and also the improved flow of increation and knowledge. That, of course, does not mean that priorities have shifted completely, as external funding and promotion or lobbying for related activities (e.g. increased market importance of the brand of a cluster and of a region; better cluster position as a partner for external actors (e.g. public authorities, market environment institutions)) still remain important objectives.¹¹⁶

¹¹⁵ O. Solvell, G. Lidqvist, Chr. Ketles, *The Cluster Initiative Greenbook*, Stockholm 2003, p. 10; J. Hołub-Iwan, M. Małachowska, *Rozwój klastrów w Polsce. Raport z badań*, Szczecin 2008, pp. 35-36; *Benchmarking klastrów w Polsce – edycja 2012 Raport ogólny*, ed. J. Hołub-Iwan, Polish Agency for Enterprise Development, Warsaw 2012.

¹¹⁶ The studies are discussed more in-depth in Chapter II (by: A. Nowakowska, Z. Przygodzki, M. Sokołowicz), source: *Benchmarking klastrów w Polsce – edycja 2010 Raport z badania*, Deloitte Business Consulting S.A., Polish Agency for Enterprise Development, Warsaw 2010,

These facts accompany the rationality behind the innovation policy focused on local production systems. However, the policy focused not only on the so-called highly innovative industries is based on the assumption that only they represent innovative capabilities. The policy may also relate to other industries, which may become competitive as a result of the so-called hidden innovations.

Local production systems develop various entities and institutions organised around common objectives. The efficiency of such innovative milieus can be achieved due to the presence of the:¹¹⁷

- benefits of proximity;
- benefits of socialisation.

The benefits of proximity allow, firstly, to diminish the costs of small enterprises compared to large ones (element of static productivity) and, secondly, they facilitate the generation, dissemination and absorption of innovation (element of dynamic productivity). Examples of static productivity include: diminished costs of production as a result of external factors, infrastructure and services addressed at specialised sectors; reduction of costs of transactions and of the market presence due to the improved flow of information; reduction of the cost of promotion, such as information and impulses, sent out by the milieu to the environment (a type of “quality certificate”). Examples of dynamic productivity include: imitation, coordination and mutual control of production units. The benefits of socialisation result mostly from the improved innovation capabilities of a milieu achieved through the:

- collective practice covering the local labour market and fostered by internal mobility of competence within the milieu;
- cooperation between companies, which helps transfer the competence and the so called *tacit knowledge*¹¹⁸ between companies;
- socialisation of risk.

These factors, as observed by R. Camagni, play a dual role. On the one hand, they reduce uncertainty in the innovation processes (typical of competitive milieus)

p. 36; Benchmarking klastrów w Polsce – edycja 2012 Raport ogólny, ed. J. Hołub-Iwan, Polish Agency for Enterprise Development, Warsaw 2012, pp. 33-34.

¹¹⁷ Op. cit., A. Hsaini (2000), *Le dépassement des économies...*, p. 226. These elements were highlighted already by A. Marschall when speaking of the benefits of agglomeration. For more see paragraph 1.5 (by: M. Sokołowicz)

¹¹⁸ Tacit knowledge – is knowledge recorded in the memory of a locality, uncoded, and not subject to market mechanisms (only coded knowledge that has its price is market-driven). I. Pietrzyk (2000), *Polityka regionalna Unii Europejskiej i regiony w państwach członkowskich*, PWN, Warsaw, p. 28.

and on the other hand, they minimise obstacles to change. A milieu rich in knowledge and human resources and highly capable of creating innovations is also able to create a new social and economic reality.¹¹⁹

At present, scientists, politicians, entrepreneurs and other market participants are all interested in LPS. This interest, particularly on the part of the entrepreneurs, is due to measurable effects of such an organisational arrangement. It is also the outcome of benefits and successful cluster initiatives reported in both traditional, low innovation industries (in Northern Italy, Germany, Switzerland, etc.) and in highly innovative sectors with a large share of R&D activities (Silicon Valley, Sophia Antipolis, Cambridge, Route 128, etc.), accompanied by many cases all over the world.

The creation of a network is promoted and motivated by the drive of individual operators to achieve a competitive advantage. Within the LPS, business partners' forces and operations become integrated, which brings the effect of the economies of scale, provides them with a better market insight, not only at regional or national but also at global level and, consistently, internationalises their operations.¹²⁰ Successes of operators active in a given area within the LPS attract followers, imitators and competitors but also motivate and support local entrepreneurship leading to the establishing of new companies.¹²¹

A mature local production system "is a collection of selected relations with chosen partners that forms part of companies' market relations. The main driving force behind it is the wish to reduce the uncertainty of operations."¹²² This is why

¹¹⁹ Op. cit., A. Hsaini (2000), *Le dépassement des economies...*, p. 226.

¹²⁰ Internationalisation of operations, in particular in the case of SMEs, is often supported by large multinational companies, which operate within a local production system, by means of the so called "piggy-back" phenomenon (Fr. portage). Cooperation takes place between a large multinational enterprise and a small or medium-sized local company, which usually manufactures complementary products. A large multinational enterprise supports an SME in selling the SME's products on a foreign market via its distribution network and sharing its experience. Thus a small company is brought into foreign markets on a "piggy-back" and the large enterprise benefits from the commission on sales, a speedier recovery of costs connected with the development of a distribution network and an enriched product offering (M. Sokołowicz, *Przedsiębiorstwa ponadnarodowe – motywy internacjonalizacji, strategie rozwoju i formy organizacji produkcji*, [in:] *Przestrzenne zróżnicowanie procesów transformacji społeczno-gospodarczej w regionie łódzkim*, eds. A. Jewtuchowicz, A. Suliborski, (2006) Publishing House of the University of Lodz, Lodz, p. 28).

¹²¹ Stuart A. Rosenfeld, (2002) *Just Clusters Economic development strategies that reach more people and places, A Synthesis of Experiences*, Supported by a grant from the Ford Foundation, p. 14.

¹²² A. Jewtuchowicz, (1997) *Środowisko przedsiębiorczości, innowacje a rozwój terytorialny*, Publishing House of the University of Lodz, Lodz, p. 14.

these systems mainly operate as specific networks of companies that facilitate communication and generate, in one place and time, differentiated and dispersed technological (innovative) production, organisational, and managerial competences. Thus, one of the main benefits of being a part of a well-operating and organised milieu is the increased productivity achieved by e.g. access to specialised production factors (workers, suppliers, clients, specialist innovation, institutions). Besides, it is rare for one company, especially a small one, to have all of these competences complete and up to the requirements of the international market. Having these competences is a starting point for achieving a competitive advantage on the market.¹²³ We may quote here the results of global studies on clusters (as one of the types of LPS)¹²⁴ published in *The Cluster Initiative Greenbook*. They showed that 85% of respondents agree that operating in a cluster improves their competitiveness, while 89% of respondents reported in general an overall better performance, and only 4% reported negative opinions.¹²⁵

Technical and technological progress combined with increasing competition, on the one hand, and the wish to expand, on the other hand, force companies and manufacturers (especially SMEs) to innovate, which is the precondition for operating on the market.¹²⁶ Entrepreneurial milieus organised as LPS offer opportunities to enterprises, which are unable to capture the entirety of the innovative processes and may deploy external competences and develop their links with the environment. These links are of both market (based on formal agreements and contracts), and non-market nature (based on conventions, trust, commonly shared behaviours and culture). LPS also facilitates the dissemination and creation of innovation by generating a competitive environment and climate, which encourages innovation by reducing the risk (facilitating experimentation) through the reduction of operational costs compared to isolated companies.¹²⁷

Moreover, a network mitigates, or completely eliminates, the hierarchy among its participants¹²⁸ and replaces it with a new organisational horizontal structure,

¹²³ Cz. Sikorski, (1998) *Ludzie nowej organizacji*, Publishing House of the University of Lodz, Lodz, p. 17.

¹²⁴ Other territorial forms of cooperation are discussed in more details in 1.4. (by J. Chądzyński)

¹²⁵ The study identified 505 cluster initiatives globally and its results are based on 238 questionnaires. O. Solvell, G. Lidqvist, Chr. Ketles, (2003) *The Cluster Initiative Greenbook*, Stockholm, p. 11.

¹²⁶ J. Chądzyński, (2002) *Lokalne systemy produkcyjne w regionie łódzkim*, Prace Naukowe Akademii Ekonomicznej we Wrocławiu, *Gospodarka lokalna w teorii i praktyce* no. 939, p. 387.

¹²⁷ For more see: P. Ammirato, A. Kulkarni, D. Latina, *Clusters*, (2003) *Victorian businesses working together, in a global economy*, pp. 14-16, <http://www.iird.vic.gov.au/regreform>

¹²⁸ The phenomenon is described in more depth by M. Crozier, who indicates that in the future “the majority of human activities will be immaterial and relate to relationships with others, at the cost of manufacturing, which requires only simple and repeated technical movements to

where the economic success of a company is perceived as a result of elements, such as: partnership, cooperation, mutuality and the environment of a company.¹²⁹ As pointed by A. Jewtuchowicz, a local production system (also a cluster) is “a form of organisation of enterprises”, which allows them to achieve three fundamental objectives:¹³⁰

- to control the market of complementary products, which is necessary to be able to respond quickly to external changes;
- to control the strategic development directions of complementary production, which enables the continuous innovations of own products;
- to benefit from the economies of scale by coordinating production, marketing and research with other network participants.

A. Marshall also emphasized that enhanced productivity is not only the outcome of the economies of scale observed in large enterprises but may also be achieved by smaller companies through the benefits of agglomeration¹³¹ and organisation generated by a network arrangement (in this case by an industrial district). A. Marshall had already noticed that such organisation helps by creating a local labour market, in particular it stimulates generating new competence. It enables the quick supply of specialised input and the reduction of transaction costs. Due to the interpersonal relations and the proximity of auxiliary industries, and as a result of mutual specialisation in an industrial district, the division of labour deepens in accordance with the hypothesis of enhanced productivity.¹³²

Summing up, the advantages of the agglomeration and organisation of companies in local production systems may be divided into two groups: hard and soft benefits. The effects of LSP firstly impact the resources and their quality, increased attractiveness and specificity. Hard benefits mean that the members of a cluster

transform the matter; giving orders and management functions will weaken in favour of more conceptual activities, where communication will play a more prominent role and human resources will regain their central position”, M. Crozier, (1996) *Kryzys inteligencji. Szkic o niezdolności elit do zmian*, Poltext, Warsaw, p. 37.

¹²⁹ For more see: Z. Przygodzki, (2006) *The regional innovativeness in the context of territorial production systems. From the concept of industrial district to clusters, The development of Polish social and economic space at the beginning of the 21st century*, ed. S. Korenik Polish Academy of Sciences, Committee for Spatial Economy and Regional Planning, Warsaw, pp. 113-126.

¹³⁰ For more see: A. Jewtuchowicz, *Terytorium i dylematy jego rozwoju*, (2005) Publishing House of the University of Lodz, Lodz, pp. 75-85.

¹³¹ Agglomeration in this case, means a collection, a group of elements that create entrepreneurial milieus, in which there are agglomeration benefits. Agglomeration benefits and the evolution of this notion are more broadly discussed in paragraph 1.5. by M. Sokołowicz.

¹³² For more see: A. Hsaini, (2000) *Le depassement des economies ...*, op.cit., pp. 214-241.

make better investment decisions, conclude better business transactions and reduce costs connected with production and employment. Soft benefits result from the possibility for *learning* and the flows of *tacit knowledge* by, e.g. *benchmarking* and *sharing* a network, which leads to innovation, imitation and improvements. Hard benefits include: more efficient organisation of the supply chain; enhanced productivity; facilitated access to resources; minimisation of costs; improved efficiency; higher quality; and joint ventures. Soft benefits commonly include: common vision; planning; cooperation between companies and creation of a network; transfer of technologies and innovation dissemination of tacit knowledge and know-how; as well as more possibilities for the professional career of human capital in the region.¹³³

The local milieu, from which economic operators obtain their strength, are participants in the LPS in addition to entrepreneurs. The milieu contains strategic resources for companies from the territorial network, which help them attain competitive advantages on external markets, both collectively and individually.¹³⁴ Theoreticians and practitioners dealing with regional development agree that the development of local production systems sends out many positive impulses to the region. Its effects can be divided into direct and indirect benefits. The list of indirect benefits of LPS includes:

- enhanced interest in the national economic policy for regional and local possibilities to generate development as a counterbalance to attempts to solve economic problems exclusively at macroeconomic level;
- more effective use of public resources allocated for state aid – higher proportion of horizontal and regional aid with minimised sectoral and individual aid;
- learning how to manage change and implement the idea of governance in the public sector in collaboration with the private sector, R&D and NGOs;
- creating local and regional partnerships, which result in sharing resources, capabilities and experiences among entities involved in the partnerships to achieve a common goal;¹³⁵

¹³³ National Governors Association, A Governor's Guide to Cluster-Based Economic Development, Washington 2002, pp. 9-10.

¹³⁴ For more see: Z. Przygodzki, (2005) Procesy terytorializacji przedsiębiorstw - w poszukiwaniu zasobów specyficznych w regionie łódzkim, Committee for Spatial Development of the Country, Warsaw, pp. 172-179.

¹³⁵ A. Vaňová, K. Borseková, M. Foret, (2010) Importance of Partnership and Cooperation for Territorial Development, "Theoretical and Applied Economics" Volume XVII, No. 10(551), p. 77.

- initiating and supporting the so-called seed capital to provide funding to companies and to support entrepreneurship in order to eliminate subsidies;
- improved efficiency of invested public resources by investing in infrastructure designed to support the competitiveness of local production systems.

Direct benefits include:

- improved regional competitiveness reflected in, e.g. higher living standard of its inhabitants, reduction of unemployment and creating new jobs;
- human capital development;
- accelerated development of technical, social and business environment infrastructure;
- social capital development through the support of development of networks of companies, building trust and real social dialogue;
- support for cooperation between large and small companies and exerting an impact upon the territorialisation of foreign companies;
- attracting foreign direct investments and their location in the region;
- creating new, small and medium-sized companies (successes of operators within the LPS attract followers, imitators and competitors but also motivate and support local entrepreneurship and lead to establishment of new companies¹³⁶);
- building the brand for the region;
- support for the development of region-specific resources;
- support for the creation and efficient operation of Regional Innovation Systems.

Local production systems “generated” by innovative or creative entrepreneurship milieus represent unique characteristics that are decisive for the development of their competitive capabilities. The situation can be compared to a spaceship that remains in orbit because its gravitation is counterbalanced with centrifugal force. Likewise enterprises in contemporary economy are subject to the centrifugal force, i.e. globalisation. However, there is a counterbalance that helps them main-

¹³⁶ Stuart A. Rosenfeld (2002), *Just Clusters Economic development strategies that reach more people and places, A Synthesis of Experiences*, Supported by a grant from the Ford Foundation, p. 14.

tain relative stabilisation, understood as a long-term presence on the market, which can be compared to the force of gravity, i.e. the power of the territory. Local production systems have their territorial “origin” (nature) and are products of the organisation and characteristics of entrepreneurial milieus, which are crucial for their competitive capabilities.

1.3. Critical factors for the success of LPS

In the present study local production systems success factors are derived on the basis of the experience of developed and successfully applied cluster strategy for whiskey production in Scotland, for the development of relations between companies in a given sector and their ability to create and maintain a network interaction to achieve dynamic objectives in Germany, Denmark, Sweden and Norway, and in other developed countries¹³⁷, as well as for sanitary ware and fittings, for electrical equipment and the manufacture of cables and wires in Bulgaria. The inductive approach has been applied. Irrespective of the specificity of the factors with significant influence on LPS establishment and development in different countries, these can be grouped by type of impact on their development, which was discussed at the beginning of this study.

1.3.1. Critical success factors for the creation and functioning of LPS in EU member states

LPS development depends on the availability of specific resources in the regional systems. Each regional system has its endogenous potential, which is an essential prerequisite for socio-economic development. The supranational, national, regional and local development strategies in the EU member states are focusing on the approaches for its effective use. The endogenous potential could be characterised not only by its material nature but also by its intangible one. The first group of **tangible assets** comprises the availability of natural resources (resource potential degree of absorption, the level of its usage), concentration/deconcentration of production and market structures (quality of industrial buildings and construction in use, technical and social infrastructure, market structures degree of development and its trends), geographical location, the cultural heritage of the regional system etc.

The **intangible assets** directly related to the technological development of business entities in LPS are also essential for LPS establishment and development. They could comprise: technical and technological factors (intellectual capital capacity, changes in the value system, interaction between education and science) on the one hand, and the economy of the regional system, on the other hand, (in-

¹³⁷ H. Katrandziev, S. Tonkova, E. Cvetanova (2014); Local Production systems in countries in EU. Comparative Analysis. ; Sofia; UNWE, pp. 66-97

vestment policies and priorities of the technical and technological changes). A significant influence on LPS establishment and effective functioning are the normative legal factors (state of the law and degree of approximation with the European legislation, efficiency of the judicial system to comply with the European standards for working conditions, environment, training and staff development at European level). Last but not least one should emphasize the traditions, values and norms shared by the local community, as well as the interaction between the stakeholders in order to achieve maximum transparency and honesty for the public, the people who live in the area where LPS are operating¹³⁸, combined with investors policy commitment to local issues related to education, infrastructure, and integration of LPS business entities that are partners to the investment results in the abovementioned areas.

In the member states of the EU, there are good practices in the field of the endogenous development and spatial-economic interaction: Germany - Baden-Württemberg region, the region of Wales in the UK, the region of Grenoble-Melan, the region of Turin, Northeastern and Central Italy and others. The economic growth of the regions of Northeastern and Central Italy is due to the extraordinary coincidence of a number of circumstances: Both Northeastern and Central Italy have well established infrastructure; these areas are inheritors of a great tradition in the field of local government; the economic activities specialisation allows for production processes' fragmentation in small and medium-sized enterprises that have achieved sustainable technological autonomy; strong expansion of small and medium enterprises performing even tertiary functions; expansion of the activities of enterprises without socially insurmountable conflicts; highly skilled workforce. Taking into account the Italian experience one could conclude that LPS development largely depends on the possibility of the human capital to implement its production function. In order to do so, a strong political will is required, motivated not only by the principles of economic efficiency, but also by the principle of territorial solidarity.

In Bulgaria, the spontaneous processes of endogenous development and spatial-economic interaction are still less common. However, the experience of the establishment and development of regional clusters forms through the incorporation of

¹³⁸ In this regard regional marketing has an important role to play. Through it a balance in the divergent interests of multiple actors at local level could be achieved. Without the rational use of this tool government bodies and local self-governance would not be able to realise much needed market transcreations in regional economy. These bodies are unable to create a favourable investment climate not only to attract investors from outside, but also to retain already established and functioning business entities. And last, but not least - regional marketing bodies of state administration and self-governance can attract the stakeholders to the cause of LPS future development.

business entities in the municipality of Sevlievo¹³⁹, (as a variety of LPS), will be shared. The development of regional cluster forms of companies is a prerequisite for a successful partnership with local authorities to achieve a competitive advantage. The initiative for their creation belongs to the business. However, the role of local authorities in the process should not be underestimated. Local authorities can not only speed-up the process of regional clusters establishment by creating a favourable investment climate, but can also directly participate in the clusters. All participants in the regional industrial clusters have complementary interests, there is interdependence between them, their business strategies are harmonised, thus balancing their objectives and interests, and they share the same values and management practices.

In the Sevlievo municipality the economic boom is related to the following circumstances:

- the favourable location of the municipality;
- its well-developed and diverse potential combined with gained experience and traditions that result in the multi-sectoral economic development of the municipality;
- the adaptive capacity of different economic sectors to the local, national and international business environment;
- the key sector in the local economy is industry, which has the highest growth potential;

¹³⁹ The municipality of Sevlievo is developing two clusters. *The first one* brings together manufacturing companies producing sanitary fittings and sanitary ceramics. The central role of 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. Supporting actions have an important role in cluster development. These include the processing of raw materials for the ceramic industry in the Minerali Industriali Bulgaria, Italian company; Hamberger Bulgaria Ltd, the only subsidiary of the German company "Hamberger" exported outside Germany, Bulgarian-Italian Company Sibi Ltd, Biomet Distribution Centre etc. *The second cluster* operates in the area of electrical equipment, and cable and wire production. That cluster has two major companies: ABB Avangard (specialising 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). Systematic interpretation of the model "centre-periphery" and endogenous development of regional systems. Forecasting and Strategic Planning, Sofia, UNWE, 2012, pp. 217.

- a high share of manufacturing in net incomes from sales and a steady trend of relative preservation of its contribution to the gross production of the municipality and the region;
- the enterprises of the processing industry determined the shape of the local economy;
- production processes in leading companies allow for phase fragmentation, which is a powerful provocateur for the development of new enterprises as first, second and third order subcontractors;
- the investment policy of the municipality aims to promote local, national and foreign investors by creating a favourable investment climate.

As a result of the endogenous and spatial-economic interaction the Sevlievo Municipality has become a local production system, i.e. there is cooperation between the companies not only in a narrow, but also in a broader sense. It affects not only the forms of conscious cooperation (consortia or service centres), but also cooperation as a result of the power of intuition, i.e. cooperation prompted by the subconscious mind, in terms of building trust and common ground in the relationship between companies. As a result of the relationship between the companies and between the businesses and the territory, the economic agglomeration becomes a key to the companies' population - strategic suppliers from Germany and Italy are attracted. In this respect, an important role is performed by the business association "Sevlievo 21st Century", which proved to be a catalyst for economic stability and favourable business climate and a benchmark for public-private partnership in the country.¹⁴⁰

In Scotland, a strategy has been created for the development of business clustering in different regions, supported by the governmental development agency - "Scottish Enterprise" and "Highlands and Islands Enterprise". It is applicable to sparsely populated mountain and island regions, and concerns the production of whiskey. In this case the critical success factors are¹⁴¹:

- the availability of ideal natural conditions (including water);
- workers are capable and there is a tradition of making whiskey;
- related and supporting industries such as bottling, cooperage, distribution and packaging, have been developed;

¹⁴⁰ S. Tonkova (2012), Regional Marketing, Sofia, UNWE, pp. 588-596.

¹⁴¹ In Danson, M and Whittam, G. The Scotch Whisky Industry - current performance and future prospects - priorities for improvement, prepared for The Scottish Trades Union Congress and The Scotch Whisky Association, 1999.

- the industry is dominated by a few large companies, but they face strong competition from similar products and substitutes on the alcohol market;
- the existence of the government regulation, especially the condition that the product with the brand name "*Scotch whisky*" must be distilled in Scotland has led to regional industry clustering in four main areas (Spey-side, Highland, Lowland and Islay), with the most favourable conditions;
- increasing employment through the development of the main, related and supporting industries.

The high level of cooperation and network relationships in the industry, which are crucial for the development of a successful cluster, are also typical. The key institution supporting the networking is the Scottish Whisky Association (SWA), an organisation representing all major players in the industry. It also supports the connections to other structures and encourages the companies in the sector to work together to create synergy in their activities. An example of the latter is the creation of lobbies and the conducting of independent policy oriented towards the protection of the image and reputation of the brand "*Scotch Whisky*". The SWA has an important role in the development of the cooperation between industry and the Heriot-Watt University in Edinburgh, where courses for brewing and distilling are organised¹⁴².

In Germany LPS are usually distinguished from the other cluster structures because they agglomerate the economic activity around specific local resources, traditional industries and/or business relationships to include in the system additional sectors and/or new activities that make the economic structure more complete and to expand the opportunities for the regional system development. In this case the integration consists of: the relationship between companies in a given sector; their ability to establish and maintain an interactive network; their ability to collaborate to achieve dynamic goals. Thus, the integration is an indicator of the capacity of the system to start up new activities in different but complementary sectors. In this respect, the production integration allows the increase of the competitiveness of LPS based on the relation "quality of production - production integration", and generates economies from the local production scope. More precisely, production integration has a positive impact on the following areas:

- quality improvement and reinforcement of the reputation not only of the particular products and services but also of the relevant territorial unit as a whole, due to the transfer of positive image;

¹⁴² In Atterton, J. The Role of Civil Society and the Business Community in Rural Restructuring. Scottish Office, 1999.

- customer loyalty creation as a result of LPS high production quality that occurs in a positive attitude towards a specific location.

For example, in Nuremberg areas with relatively high importance to the region that have potential for future development are selected. Their selection is made with the participation of representatives of Trade unions, the Chamber of Commerce, regional and local business organisations and associations, as well as representatives of the Bavarian region. One of the first results is the Plan for the Economic Nuremberg Region¹⁴³, in which the conceptual directions for regional development have been marked, are as follows: Medicine, Pharmaceuticals and Healthcare, Communications and Media, Energy and Environment, Transport and Logistics, New materials and Sources of raw materials. The selection of the above-mentioned areas has been carried out on the basis of two criteria: the first - areas that have relatively high importance to the region; and the second – that have potential for development.

In Germany "local stakeholders" have a key role to play in LPS establishment and development not only because they are implementing regional strategies and plans but also because these stakeholders are directly involved in their development. That approach in local governance leads to what Courlet¹⁴⁴ calls "social activities" where "local stakeholders" interact and contribute their own skills and resources to the socio-economic development of the territory. Storper¹⁴⁵ also stresses that stakeholders's active participation in local governance is facilitated by the social capital. Social capital contributes to regional development by encouraging the exchange and dissemination of knowledge, ideas and know-how and by provoking a relationship of trust between "local stakeholders", thus increasing local competitiveness and attractiveness. Examples of specific public measures to promote the cluster and network development in Germany are:

- BioRegio-Competition: This competitive environment is the basis for the establishment and strengthening of a regional infrastructure for biotech companies in a limited number of regions ("strengths strengthening");
- BioProfile and InnoRegio - innovative regional development nuclei, learning regions. These measures aim to improve the existing secondary strengths through intensification of network connections and create a unique profile in the different regions;

¹⁴³ <http://www.cluster-excellence.eu/3555.html> (2010)

¹⁴⁴ Courlet, C. *L'économie territoriale*. Grenoble: PUG. 2008

¹⁴⁵ Storper, M. The resurgence of Regional Economies, ten years later: the Region as a nexus of untraded interdependencies.// *European Urban and Regional Studies*, 2, 1995, pp. 191-221.

- Peak cluster – competitive environment of the Federal Ministry for Science and Research, First tour 2007/2008: It relies on the strategic development of high-performance clusters of science and economy, in order to accelerate the incorporation of ideas into products, processes and services;
- Bio industry 2021 - Competitive environment cluster for the development of new products and methods in industrial biotechnology, as of 2006;
- Cluster Offensive Bavaria (as of 2006): Oriented towards promotion of 19 cluster platforms (networking, communication skills), but not for individual actors' potential transcreation i.e. networking is based on the foreground;
- Regio cluster North Rhine-Westphalia, Hesse offensive cluster, Higher competitive conditions in the Federal Saxony, Regional cluster competitive environment in Baden-Württemberg, promoting regional networks Mecklenburg-Forpomen, Cluster initiative in Central Germany: Initiatives of individual federates, incl. initiatives beyond their limits, started in 2007/2008 for the promotion of clusters and network connections, etc.

These measures encourage networking in certain technological fields or advanced branches, as well as between the existing concentrations of businesses, higher education institutions, non-university research institutes and other supporting organisations (innovation active promotion through further development of existing regional configurations of actors). The objective of these measures is to equalize existing regional gaps in economic structure, through the instrument of building clusters and contribute to job creation within the industrial policy for added value increase. Expectations regarding the results are based on the assumption that by applying innovation and economic-policy measures it is possible to:

- create a critical mass of companies, higher education institutions, etc., as a prerequisite for the development of local production systems;
- excite and stimulate growth and intensify cooperative exchange processes between the cluster structure participants and as a result, to realise policy stability, effectiveness and efficiency of economic processes through levelling the innovative capacity within a national or international perspective.

In Denmark, particular attention is paid to the development of local innovation systems in the furniture industry and wireless communications. The economic growth in the regions where these sectors are developed is due to the establishment of stable and flexible inter-relationships based on a high level of trust between partner businesses, local norms and established practices of dialogue be-

tween company managers and workers in the local community, as well as to the formalisation of the cooperation between companies and universities through the establishment of an Association. Product line experimentation and rethinking are based on the ideas of workers who become a key mechanism to companies' innovation. In other words, a major source of innovation are the interactive innovation activities carried out through the vertical network interaction between manufacturers and their suppliers, as well as through the horizontal interaction network leading to the provision of more diverse product lines. The sustainability of these relationships in local production systems is achieved by sharing the common values and standards for the management of the companies in the cluster structure. It could also be achieved through the region's traditions in entrepreneurship, the artisanship of products belonging to a single economic community and local solidarity.

In Southern Sweden, where some of the largest food producers in Sweden are located, LPS establishment and functioning is based on new technologies. These LPS have a high capacity for innovation and growth as compared to the traditional food industry. Around the University of Lund there are some large companies involved in research and development in the field of healthy food and food supplements. These companies interact with the university, the traditional food producers and local research institutes in the field of healthy products marketing. Typically, for food production, LPS provide a wide range of innovative support for the food sector.

In Southeastern Norway leading forces in the local electronics industry are: the system of intermediaries in e-business companies and the companies for industrial manufacture of components, details etc. These cooperate with national and international research organisations, universities and other clients. The cluster structure is characterised by networks between staff in different companies as well as by the mobility of the workforce. Since most of them are specialised manufacturers of components and software they play an important role in the innovation process, the transfer of prototypes in real production or in addressing common technological problems.

In the Sevlievo LPS, Bulgaria places emphasis on the ability of the companies to implement obvious advantages - increasing productivity and profitable competitive positions. The significant improvements in the last two points are the result of the relationships established between geographically related companies that generate semi-formal networks. These networks make it possible for businesses in the municipality to perform much wider and more complex functions in comparison with the individual companies. Such an agglomeration supports the emergence and operation of the so-called regional system of self-financing mechanisms. In fact, the economic viability of the municipality of Sevlievo depends both on the

internal diversification of the production in vertical and horizontal lines and the change in the structure of product supply and demand. In particular, it is determined by:

- the interlinking of businesses that are leaders in the cluster networks, and many other companies and organisations that are technology related or are performing service and maintenance activities, transport services and logistics, applied research;
- the ability of the companies to derive maximum benefit from external links, through logistics platform organisation and SAP centre establishment;
- the important social mission of the companies. Their mission is an engine of their business by investing in: modern waste water treatment equipment, thus caring for the environment and the health of the workers; health care when buying modern equipment for diagnosis and treatment; cultural heritage for its development and conservation; Christian values preservation. Investments in infrastructure are considerable: construction of a gas pipeline; investments in a fibre optic cable to improve telecommunications in the municipality; building of own four-star hotel; development of vocational and language education; development of sports;
- the ability of the companies to adapt to the inevitable structural changes over time¹⁴⁶, including development and implementation of the concept of production and distribution integration at national and international level.

Companies' cooperation in the cluster network aims at integrating their efforts to enhance the competitiveness of the regional industry in compliance with the requirements and the pressure of the European markets. As a result of the cluster's functioning and development a technological synergy effect is achieved through the production of related products and services, and assemblies and details. The companies in the cluster cooperate not only between themselves but also with local authorities in order to improve the technical and social infrastructure. They make use of the common opportunities for human resources' educational and qualification improvement, for advertising and promotion of products to attract investors.

Residents of the Sevlievo Municipality are strongly attached to their native land. They cherish traditions and respect the experience of their predecessors. They also appreciate the capabilities of the scientific and technological progress in order to

¹⁴⁶ Georgiev, Ivan and Tsvetan Tsvetkov. Comparative innovative analysis of industrial companies in Bulgaria and the EU. UNWE Annual Book, Sofia, 2004.

achieve economic and social progress¹⁴⁷. The Sevlievo Municipality is a model of endogenous development in the country¹⁴⁸, accompanied by increased and efficient use of natural, economic and human potential combined with the provision of a high level of services to the population and economic entities. All of this leads to increased productivity and competitiveness of the regional economy¹⁴⁹. According to Vassil Kanev, Managing Director and Chairman of the Board of Directors of "Ideal Standard - Vidima" AD¹⁵⁰ there is no exact recipe for success. He underlines the following two major factors: 1. cohesion between the policy of "Ideal Standard - Vidima" AD and the Municipality management policy; 2. the presence of a management team characterised by will and professionalism, conviction of all company staff. But this is not enough. The Managing director continues: "...maximum transparency and honesty towards the society, compliance with European standards and labour conditions, joint long-term strategy, staff training and development, compliance with the European criteria – these criteria are essential. We have developed a policy of investors' commitment to local issues such as education, health, infrastructure and other social issues, i.e. a balanced approach for the investor and for the region."

The analysis of the presented case studies of EU countries allows us to conclude that the LPS model permits the realisation of sustainable local development, which is based on: increasing competitiveness and attractiveness of the territorial unit; quality promotion of local goods and services; provision of a better quality of life for the population. The technical and economic, as well as the social and environmental challenges that shake the world, are changing the spatial behaviour of the business entities. There is a growing flexibility in the behaviour of the business entities in the choice of raw material sources. In no lesser extent various forms of flexibility of these entities could be observed regarding the mode of transport for raw materials, applied technologies and the depth of their processing.

¹⁴⁷ Boeva, Bistra. University - Business Interaction in the Conditions of Bulgaria's accession to the EU. Economic Alternatives, N 2, 2005.

¹⁴⁸ Data provided by the municipality of Sevlievo state its population has 41500 inhabitants, of which 26800 live in the municipal centre. In 2011 the industry occupied 76% of the total volume of the gross production in the municipality. There are 1200 companies, including 7 large companies employing over 250 people each. Net sales per capita are above average. The unemployment rate is 6.7% against the national average of 10.1%. Gas is supplied to 100% of the enterprises in the industrial sector, 100% of public and administrative buildings, and household gasification reached 41%.

¹⁴⁹ In times of economic crisis, the unemployment rate in the Sevlievo municipality is 4.1 percentage points lower the average unemployment rate in 2011

¹⁵⁰ At present "Ideal Standart – Vidima" AD is a part from Ideal Standard International.

1.3.2. Strategic study of the LPS business entities claims to the regional environment across the entire "formulation requirements – feasibility requirements" chain

Constantly changing conditions foster the spread of activities on intra-regional, national and supra-national level. It should also be noted that the factors that drive changes do not act in one way or unimpeded. For example, the update of the products of technological innovation and their life cycle shortening, combined with the continuous updating of the production factors, create new problems related to the human factor and its ability to adapt¹⁵¹. Business entities are faced not only with the need to adapt to the regional environment, but also to actively participate in the process of creating the necessary conditions for its future development. The internal regional environment can in some cases emanate messages of "absorption" of the business initiatives, and in other cases - create barriers of technical, organisational and psychological character. Technical barriers correlate most often with the unsatisfactory level of technical infrastructure, while the organisational barriers mainly affect the management systems and are related to the

¹⁵¹ Here the link is indirectly expressed by the Human Development Index (HDI), whose characteristics are contained in the 2006 Report on Human Development of the United Nations Programme. According to this indicator Bulgaria is 54th out of 177 countries with a HDI of 0.816. Accordingly it belongs to the group of countries with a high degree of human development and overtakes Romania, which is in 60th place. In recent years, our country climbs up by one place in the ranking on this index, and compared to the position in 2002 (62nd) it progressed significantly in order to enter the group of countries with a high degree of human development. In 2007, this trend to move forward continues again and our country is ranked 53rd, while Romania remains at the level achieved in the previous year. The top of the ranking in 2006 has been occupied by Norway, Iceland, Australia, Ireland and Sweden. Noticeable are the places occupied by some of the new EU member states: Slovenia - 27th, Cyprus - 29th, Czech Republic - 30th, Hungary - 35th. As for the countries neighboring Bulgaria, which are not members of the EU Turkey is farthest from Bulgaria. According to its HDI the country is ranked 92nd. As to Macedonia it is ranked 66th. There is no data on Serbia for this indicator. Despite the fact that the increation is incomplete, we can definitely say that according to the index of human development the Balkan countries are very slowly approaching each other. As a result the attractive power of the Balkan countries for investments will be different. In 2010, substantial changes occurred in the Balkan countries in terms of HDI. Bulgaria (58th place) is lagging behind Montenegro (49th place), Romania (50th place), Croatia (51st place). The top of the 2010 ranking has been occupied by Norway, Australia, New Zealand, Ireland and Liechtenstein. Countries such as Greece – 22nd place, Austria – 25th place, UK - 26th place, Czech Republic – 28th place, Slovenia – 29th place, Slovakia – 31st, the Cyprus – 35th place, Hungary – 36th place, Poland – 41st place also change their place in terms of HDI. Of course one should also take into account the fact that for the calculation of the index a new methodology has been used. As a result of its application values calculated are lower than those calculated with the old methodology. With the new method of calculation the standard of living is based on the natural logarithm of the gross national product (while in the old methodology the gross domestic product was used) per capita in relation to the purchasing power. For more increation see: <http://bg.wikipedia.org/wiki>

imperfect work of the public administration. As to the psychological barriers, they most often result from insufficient training of the population in the region to adopt the innovations.

Regional marketing is the instrument through which the region's notion is enriched in specific aspects. The purpose of marketing is to build trust in the regional environment among economic agents, a purpose achieved by building an image based on increation presented through the perspectives of both the present and the future. Regional marketing facilitates the identification of the niche in which a community is different from the others. The determination of LPS business entities' claims to the environment is inevitably linked to its strategic learning as a fundamental element in the chain "formulation requirements– feasibility requirements". The fragmented direct and indirect studies on the internal regional environment and the prospects for its development carried out by the entities that make decisions to expand and build new LPS entities lead to the creation of a positive or negative idea in this environment. In the process of studying the environment, business entities consider, among other things, the assumption that the past behavior of a variable affects one's expectations about its future behavior.

Business entities able to plan the trajectory of the development of a variable, can use a much wider range of increation than that contained in its past development. They form their predictions of regional environmental changes based on the most important and significant economic and non-economic data. The way they will react to the expected changes in the regional environment largely depends on the type of regional economic policy followed. Business entities, forming LPS, are directly involved in local development and have common interests in terms of regional dynamics in the future. In particular, they consider not only the realities of the internal socio-economic space. To a greater extent the business entities are turning their attention to the potential possibilities for the variation of the target orientation in the space development. These possibilities do not appear automatically. They are synthesized as a result of continuous research and applied work. As a rule, local strategies, plans, programmes and projects are developed on the basis of the results of preliminary studies. The business entities carry out their activities in compliance not only with the image they have built in terms of intra-regional environment, but also with the role that they have been assigned or is assigned to them in terms of implementation of regional environmental development activities. The search for support about regional development among the business entities and the public is a major task for the regional authorities. Much more significant, however, is the need to seek the likely effect of the planned action by the regional authorities and the unique contribution of the stakeholders (business entities and public) on the process of strategic planning and the strategic

plan implementation. The indirect effect of this should be sought in the LPS competitiveness improvement, not only at national, but also at supranational level.

Among the key points that characterise the connection thus presented is the re-evaluation of the planning process logic. Until the beginning of the XXI century in most cases it was based on the motion of the planning process from the present to the future. Challenges of modern times require us to seek a release from that predetermination. The right direction here is the implementation of the strategic perspective for the development of the intra-regional environment based on the motion from the future to the present¹⁵². The main subjective factor for the realisation of the strategic perspective for the development of the intra-regional environment based on the motion from the future to the present is the regional authorities' administrative capacity. A targeted survey of national strategic reference frameworks of the Balkan countries in terms of priorities shows that the administrative capacity is present directly or indirectly. Greece (one of the oldest member states) as well as Romania (one of the newest member states) defines the administrative capacity building as a direct strategic priority. For Bulgaria the priority is presented indirectly. Undoubtedly, the implementation of the strategic priorities will depend on the administrative capacity of the countries.

1.3.3. Key organisational factors for the success of LPS business entities

The profound and complex changes in the conditions of the business environment of today's LPS make it extremely difficult to guarantee their existence and to ensure their long-term success. The orientation of the organisational goals towards such performance indicators as income, profitability and liquidity is insufficient, because these indicators deteriorate quite rapidly and the leadership of the organisation is unable to respond in due time. This is due to the fluctuations of those operational variables that result from realised earlier changes. In connection with the development of increation systems for organisation management that supports the process of selection of key variables for success, Daniel stated that the success of a particular market in a given sector depends on some small number of dominant factors (three to six). He says that they are "key activities that the organisation needs to perform extremely well in order to ensure its successful existence"¹⁵³.

LPS business entities' key success factors should be included in the strategic planning process. Disregarding them can turn the results achieved by the organisation into casual and short-dated. Thus, on the basis of the conducted strategic analysis, as a starting point for organisation's strategy development factors for its

¹⁵² Manov, Vasil. *The Reforms in the Post-socialist Society. The Bulgarian Experience*. Moskva, Economics, 2000, pp. 291-306 (in Russian).

¹⁵³ Daniel, D., 1961, p. 116.

success are formulated. On the other hand, the definition of (strategic) success factors could be considered as an independent diagnosis method in the context of the strategic analysis.

Success is a positive result from an effort or is the occurrence of a desired impact. In other words, success is the achievement of a goal. Moreover, it should be noted that the perception of the success, or respectively of the failure, depends to a great extent on the harmony between the result achieved and personal expectations, rather than on the absolute amount of the achievement itself. This is the reason for the difficulties in the objective measuring of the success, as it is a subjectively perceived phenomenon. Achievement that exceeds the expected level is seen as a success otherwise it is marked as a failure. Thus, success could be defined in a broader context as the degree of achievement of the objective operationalised with the help of indicators.

More complicated is the determination of the degree of achievement of the goal by means of several indicators. In that case it is necessary to make a summary assessment. Using that assessment the cumulative final result is obtained and is based on the individual values of a set of indicators. Only then is it possible to determine the degree of achievement of the goal by implementing an appropriate grading scale. Thus, one could conclude that success is defined as determined by the extent of achievement of the goal determined by means of appropriate indicators. Moreover, each of the indicators could be a complex value, i.e. it could incorporate several sub-indicators. Key success factors are variables that form the basis of the competitive strategy of the organisation and can therefore not be specifically defined. They are characterised by several particularities:

- Key success factors are variables that affect in a given way both the success and the failure of the organisations in LPS. They have a decisive impact on the success of the organisations in LPS. Therefore their number is limited to those variables for which there is a cause and effect relationship between them and the success of the organisation;
- Key success factors influence both the long-term success of the organisations and their long-term performance;
- Key success factors could be defined by using different measurement scales, allowing their operationalisation while developing effective organisational strategies.

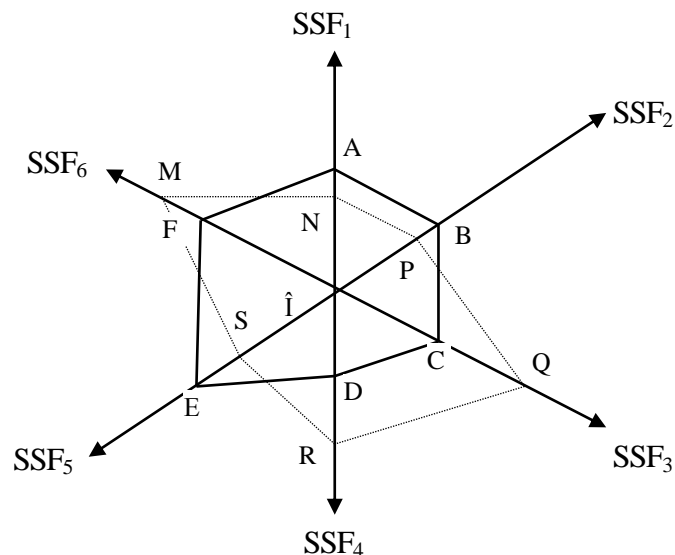
Organisation's key success factors identification is connected with problem solving that are inherently characterised by a growing complexity. It is determined by the variety of internal and external causes for realisation of the organisation and the interdependencies between them. Thus, the following principles should be

applied: gradual detailed description and aggregation of success factors; objective coordination of success factors; temporal coordination of key success factors.

Central to the development of an effective strategy is the analysis of the organisation's strategic potentials for success. They include all that are specific to the organisation's product and market prerequisites for success during the period being considered. Their creation requires a long period of time in which the necessary production capacity, market shares and distribution channels are established¹⁵⁴. Thus, through mastering important and dominant skills it is possible to realise in a long-term perspective better results than the competitors. Accordingly, the strategic potentials for success were associated with substantive requirements for production, and the quality and skills of the labour force of the organisation. In addition, they are determined *vis-à-vis* the competitors and their existence is linked to the inability to be easily copied by them. Last but not least, the strategic potentials for success include a small number of critical conditions and skills of the organisation, which over time could be subject to changes under the influence of the environment in which the respective business unit operates.

Fig. 1.3. presents the interdependencies between the strategic success factors (SSF) and the strategic potentials for success (SPS). The coordinate axes represent the defined strategic success factors (SSF1 to SSF6), which are used to present the strategic potentials for success of the organisation (points A, B, C, D, E and F).

Figure 1.3. Relationships and dependencies between strategic success factors (SSF) and strategic potential for success (SPS)



¹⁵⁴ In Gälweiler, 1990, S. 26.

In conclusion, it should be emphasized that the socio-economic development of LPS is determined by their endogenous potential. That potential is influenced by a variety of factors that differ in strength and direction: natural resources, manufacturing, technical and social infrastructure, market structures, geographical location and cultural heritage of the regional system, national, regional and local development strategies in the European countries, technological factors, regulatory and legal factors, education system in the country and others. Therefore, the development of effective strategies for LPS development requires identification in due time of the key success factors that could be combined in an appropriate way with the potential of the organisations involved in the relevant LPS. This, in turn, is a viable means of ensuring LPS long-term ascending development in terms of resource constraints, including time shortage, variability and unpredictability of the business environment.

1.4. LPS as a form of territorial organisation of production

Interest in territorial forms of production organisation is currently at its peak, both among researchers striving to describe and explain various phenomena and among practitioners, representatives of authorities, entrepreneurs and experts involved in developing the idea. That, however, has not always been the case. During the first two or three decades following the World War II, industrial policy programmes of most countries were dominated by the conviction that the primary source of economic and social development of a territory was not the very territory itself and its specific resources but an accumulation of investment projects of large manufacturing enterprises. The crisis of the Fordist system of production organisation based on huge vertically integrated industrial organisations and multiplier's effect of economic phenomena, the idea of growth poles and spatial division of labour, and the regional development theory, have made everybody aware of the need to take account of local factors in analysing industrial dynamics. Many studies, which consider these factors, conducted by different research teams and covering various, often economically and culturally distant areas, resulted in a variety of ideas and notions, often alternative, competitive or complementary¹⁵⁵, which have as their common starting point the concept of the Marshall industrial district and the territorial external effects dating from the 19th and 20th centuries.

¹⁵⁵ See A. Jewtuchowicz, *Terytorium i współczesne dylematy jego rozwoju*, Publishing House of the University of Lodz, Lodz 2005, pp. 72-75.

1.4.1. The Marshall district

The above-mentioned concepts were presented by A. Marshall in his famous work "*Principles of economics*"¹⁵⁶ as a result of many years of study and theoretical considerations on the relationship between "the division of labour and economies of an organisation". Marshall, who studied clusters of small companies in, e.g., the textile and metallurgy industry in Birmingham and in Manchester, and noticed external benefits resulting from the agglomeration of companies linked with vertical cooperation linkages but, at the same time, fiercely competing within the same industries. "19th century industrial districts described by A. Marshall were clusters of small companies, which were craft-based specialising in the production of particular products and interlinked by tight subcontracting networks, often organised on the basis of family relations, dependent on initial capital accumulated within a local community and capable of manufacturing products meeting specific, individualised, often luxury, needs"¹⁵⁷. Based on these observations, Marshall developed the idea that increasing productivity is not only the result of the economies of scale discounted by a big enterprise, but may also be achieved by agglomeration and organisation economies generated by an industrial district as a cluster of small cooperating companies.

In the opinion of A. Marshall, the economic development reveals increasing specialisation tendencies of enterprises and their individual workers as good work organisation improves labour productivity. "This certain unity is set forth in the general rule, to which there are not many exceptions, as the development of an organism, whether social or physical, involves the increasing subdivision of functions between its separate parts on the one hand, and on the other a more intimate connection between them. Each part gets to be less and less self-sufficient, to depend for its wellbeing on other parts, so that any disorder in any part of a highly developed organism will also affect other parts"¹⁵⁸.

According to Marshall, the presence of an industrial district in a given territory brings benefits, which more or less directly translate into the development of this

¹⁵⁶ A. Marshall, *Principles of economics*, Macmillan, London 1890, Polish translation C. Znamierowski, *Zasady ekonomiki*, M. Arct's Publishing House, Warsaw 1925.

¹⁵⁷ P. Cooke, *Industrial districts, innovation networks and economic excellence*, in: A. Kukliński (ed.), *Balric Europe in the perspective of global change*, Europe 2010 Series, European Institute for Regional and Local Development, University of Warsaw, Warsaw 1995, pp. 387-391, cited after J. Grzeszczak, *Bieguny wzrostu a formy przestrzeni spolaryzowanej*, PAN Prace Geograficzne No 173, Continuo Publishing House, Wroclaw 1999, p. 36.
and Local Development, University of Warsaw, Warsaw 1995, pp. 387-391, cited after J. Grzeszczak, *Bieguny wzrostu a formy przestrzeni spolaryzowanej*, PAN Prace Geograficzne No 173, Continuo Publishing House, Wroclaw 1999, p. 36.

¹⁵⁸ A. Marshall, *Principles of ...*, t. 1, p. 235.

very territory and of the enterprises operating in it. “Co-located companies in related industries attract suppliers and buyers, which leads to agglomeration economies”¹⁵⁹. The agglomeration of the companies favours the development of the local labour market. “Employers are apt to resort to any place where they are likely to find a good choice of workers with the special skills that they require; while men seeking employment naturally go to places where there are many employers who need such skills as theirs and where they are therefore likely to find a good market.”¹⁶⁰. The development of a local labour market stimulates the acquisition of expertise and the development of new competence. “When an industry has thus chosen a locality for itself, it is likely to stay there for a long time: so great are the advantages which people following the same skilled trade get from near neighbourhood to one another. The mysteries of the trade become clear”¹⁶¹. Besides, if somebody has capabilities required for managerial jobs or for some categories of particularly complex physical work, sure enough he will be quickly assigned to do the job that he is apt to when in the neighbourhood there are many companies, where he may look for a job (position). Thus his talent will be quickly and surely developed.”¹⁶² As a result, there emerges a pool of workforce representing skills meeting the needs of the enterprises of an industry that dominates in a given district. The development of a particular industry within a specific industrial district implies the development of its subsidiary industries, which generates additional savings. “And presently subsidiary trades grow in the neighbourhood, supplying it with implements and materials, organising its traffic, and in many ways conducting to the economy of its material. Again, the economic use of expensive machinery can sometimes be attained to a very high degree in a district where there is a large aggregate production of the same kind, even though the individual capital employed in the trade is not very large. Subsidiary industries devoting each of themselves to one small branch of the process of production, and working for their neighbours, are able to keep machinery of the most highly specialised character in

¹⁵⁹ P. Maskell, The economic importance of geographical location. Some observations in relation to Arne Isaksen’s thesis on the growth of new industrial spaces and specialised areas of production, *Norsk Geografisk Tidsskrift*, 50, 2, 1996, pp. 125-128, cited from J. Grzeszczak, *Bieguny ...*, p. 36.

¹⁶⁰ A. Marshall, *Principles of ...*, p. 262.

¹⁶¹ It is equivalent to the concept of “tacit knowledge” by M. Polanyi, who claimed that “we can know more than we can tell”. That refers to this part of the increation available in a given area, which is not subject to market mechanisms, as it is not codified, but which “circulates” in a this area as a result of prior common historical, cultural and social experience.

¹⁶² See A. Hsaini, Le dépassement des économies d’agglomération comme seules sources explicatives de l’efficacité des systèmes de production territorialisés, *Revue d’Économie Régionale et Urbaine* n° 2-2000, pp. 217-218.

constant use, and to make it pay its expenses, though its original cost may have been high, and its rate of depreciation very rapid.”¹⁶³.

The so developed specialisation in an industrial district “also contributes to the development of local cultural identity and a good climate for business understood as common good, supporting and stimulating the development of the economic activity in the district”¹⁶⁴. To describe such a situation, A. Marshall coined a new term in the dictionary of economics, i.e. “industrial atmosphere”, which facilitates the acquisition of specific skills by disseminating innovation through frequent exchanges of increation among local actors¹⁶⁵. We need to stress that “industrial atmosphere” is intangible, difficult to measure and assess, but its presence within a given territory, within a given district, is fundamental for proper operations and development. Its importance can be accompanied by the fact that for A. Marshall the “industrial atmosphere” became one of the production factors, equal to land, capital and labour¹⁶⁶.

Clustering a large number of companies in a specific territory also allows for the flow of increation, new ideas and practical solutions, which can inspire further ones. “If the total population of the companies in the core industry is small, little people improve production, invent new machinery and methods. But when the total population of people interested in the same subject area is big, many of them, because of their intelligence and nature, create new ideas. Each new idea is sought and improved by many minds, each new experience, accidental or deliberate, provides food for thought and new suggestions not to some but to many people. Hence in a localised industry, new ideas propagate quickly and each new idea can be useful for practical improvements”¹⁶⁷. In any experience, competition contributes to the above-mentioned spirit of innovation.

The external benefits discussed above were grouped by A. Marshall in his analysis of industrial districts into three main groups. The first included specialisation economies resulting from the division of labour among companies complementary in their operations and production processes, which enable them to acquire high competence in one of the production stages and the economies **of scale**. The second group gathers increation and communication benefits resulting, on the one hand, from common production of non-standard goods and, on the other hand,

¹⁶³ A. Marshall, *Principles of ...*, pp. 261-262.

¹⁶⁴ P. Maskell, *The economic ...*, p. 36.

¹⁶⁵ J. Zeitlin, *Industrial districts and local economic regeneration: Overview and comment*, in: F. Pyke, W. Sengenberger (ed.), *Industrial districts and local economic regeneration*, International Institute for Labour Studies, Geneva 1992, p. 280.

¹⁶⁶ J. Grzeszczak, *Bieguny wzrostu ...*, p. 37.

¹⁶⁷ A. Hsaini, *Le dépassement ...*, p. 217.

from the high mobility of workers who were attached, not to the company where they were employed, but to the district as a geographically distinguished area. Their mobility enhanced the diffusion of innovation. Finally, one should mention the benefits resulting from the easy access to a large pool of skilled workers and job seekers, i.e. benefits of a large supply of labour¹⁶⁸.

Besides benefits, A. Marshall noticed some threats to the development of a district embedded in external and internal factors. "A district which is dependent chiefly on one industry is liable to extreme depression, in case of a falling-off in the demand for its produce, or of a failure in the supply of the raw material which it uses."¹⁶⁹ Except for a reduced demand for products and too low supply of raw materials, A. Marshall also points to, e.g., reduced prices that impact the cost of transport which, in turn, facilitates the flow of ideas between concrete distant locations; strategies of businesses that may be inconsistent with the strategy of the area where they operate; stagnation, which undermines the ability of a district to innovate and is caused by the inability to share knowledge within a given district¹⁷⁰.

The development of the idea of "Fordist industrial paradigm" in the 1920s, mentioned at the beginning of the Chapter, sent the idea of an industrial district into almost complete oblivion for several dozen years. The situation changed when Italian economists and sociologists made an attempt to explain the phenomenon of the development of the "Third Italy".

1.4.2. The "Third Italy" district¹⁷¹

The end of the 1960s in the North-Eastern and North-Central regions of Italy witnessed an intensive proliferation of local industrial clusters, often in small towns and rural areas. These observations revived the notion of an industrial district, which was used to describe these clusters in the Report of the Tuscany Regional Institute for Economic Planning (Istituto Regionale per la Programmazione Economica della Toscana – IRPET) in 1969. Considering that it was the time of "indisputable triumph of mass production and large enterprises", the "statement that large enterprises are not the only form of production organisation and that

¹⁶⁸ See J. Zeitlin, *Industrial ...*, p. 280 and J. Gancarczyk, M. Gancarczyk, *Konkurencyjność skupisk przemysłu (clusters) – od korzyści zewnętrznych do korzyści sieci*, in: *Studia Regionalne i Lokalne*, No. 2-3 (9) 2002, European Institute of Regional and Local Development of the University of Warsaw, Warsaw 2002, p. 78.

¹⁶⁹ A. Marshall, *Principles of ...*, pp. 263-264.

¹⁷⁰ See A. Hsaini, *Le dépassement ...*, p. 218.

¹⁷¹ A. Bagnasco introduced the term of "Third Italy" (*Terza Italia*) to literature to distinguish it from the "First Italy", i.e., economically developed North with dominant industrialised triangle of Milan-Turin-Genova and little developed Southern regions referred to as the "Second Italy".

companies should be analysed in the context of the area in which they operate” was innovative and went against the mainstream¹⁷².

Research on Italian industrial districts was pioneered by G. Beccattini, A. Bagnasco, C. Trigilia and S. Brusco, who in their considerations revisited the notion of an industrial district referring directly to the already forgotten A. Marshall’s concept.

Although the dynamic development of the SME sector was one of the characteristics of the post-war development of Italy, particularly in the Central and Southern regions dominated by family businesses, contrary to the companies from the South of the country, businesses operating in the “Third Italy”, i.e., in the regions of Emilia-Romagna Tuscany, Umbria, Veneto, Friuli – Venezia Giulia, Trentino – Alto Adige, were largely open and flexible in their operations, export-oriented and amenable to innovation and new technological solutions, which would help them achieve a competitive advantage. Their openness to collaboration with local public administration and working in a network with small producers was also important. The operating style adopted by these companies guaranteed a high quality of production, flexibility and quick adjustments to evolving market needs and gave positive cost and price-related outcomes. The “Italian model of “micro-industrialization” embodied in *Terza Italia* is presented as a natural form of economic organisation, different from the often pathogenic family-based system of the South but also from the gigantism so typical for the huge corporations of the North”¹⁷³.

The above mentioned G. Beccattini described an Italian style industrial district as “a social-territorial entity characterised by the active presence of a community of persons and a population of companies in a given historical and geographical space where a perfect osmosis exists between the local community and the companies. The most important trait of the community is its relatively homogenous system of values and views, which is an expression of the work and activity of the family. A common system of values constitutes one of the preliminary requirements of the preconditions for the development of the district and of the essential conditions for its reproduction. Parallel to this system of values, a system of rules and institutions has to be developed in such a way as to spread these values throughout the district and to support and transmit them through generations. The market, the company, the family, the church and the school are some of these in-

¹⁷² A. Surdej, *Polityka państwa wobec sektora małych i średnich przedsiębiorstw we Włoszech*, Polish Foundation for the Promotion of SME Development, Warsaw 2000, p. 16.

¹⁷³ M. Dobroczyński, *Włochy: posegmentowane mocarstwo europejskiego Południa*, w: *Studia Regionalne i Lokalne*, No. 2-3 (9) 2002, European Institute for Regional and Local Development of the University of Warsaw, Warsaw 2002, p. 42.

stitutions, but they also include local authorities, the local structures of political parties, cultural, religious and artistic bodies. That does not mean the conflict of interests is absent among the members of the district but the overriding principle is their subordination to a higher, common interest. Each company specialises in one or a few stages of a district-specific production process. Usually they come from the same industry, which vertically integrates all the production processes in a given field¹⁷⁴. A district is not a closed enclave, on the contrary, the precondition for its survival and development lies within its links to the external world¹⁷⁵.

W. Sengenberger and F. Pyke¹⁷⁶, in trying to characterise an industrial district, started by specifying what it definitely is not. According to them, an industrial district is definitely not a group of enterprises defined as a simple concentration of companies operating in a given restricted area. An industrial district is more than a selection of completely different production and service enterprises organised in industrial clusters. What is specific for an industrial district and what distinguishes it from an industrial cluster is the way in which its members are organised. However, probably the most important and specific feature of an industrial district is the presence of a strong network of small companies which, through specialisation and subcontracting, share the work required to produce certain goods. Specialisation increases the productivity in individual companies within the district and that of the district as a whole. The specialisation linked with subcontracting raises the potential of the collaborating enterprises. As a result, costs of production within a district decrease. W. Sengenberger and F. Pyke came to the assumption that for small companies in a district an issue equally important, (e.g., improved productivity or reduced costs of production), is the feeling that they do not stand alone, which affects the safety of their economic operations. Each individual company is an equal part of the district and as such will not be left on its own at difficult times because its failure will mean the failure of the complete network of enterprises. Hence, in their opinion, when looking for the sources of both success and failure of individual members of a district we should start by analysing the situation of the district and its operational mode.

¹⁷⁴ For example the textile industry includes chemical machinery and products necessary for textile industry and various services (e.g., designing or increation services) needed for its development.

¹⁷⁵ G. Becattini, *Le district marshallien: une notion socio-économique*, in: G. Benko, A. Lipietz (eds.), *Les régions qui gagnent*, PUF, Paris 1992, pp. 35-55, quoted after I. Pietrzyk, *Polityka regionalna ...*, pp. 45-46.

¹⁷⁶ F. Pyke, W. Sengenberger, *Industrial districts and local economic regeneration: Research and policy issues*, in: F. Pyke, W. Sengenberger (ed.), *Industrial districts and local economic regeneration*, International Institute for Labour Studies, Geneva 1992, pp. 3-4.

In the literature there are many attempts to comprehensively present and define the phenomenon of an industrial district through enumerative listing of its characteristics, which are also essential preconditions for its establishment and functioning.

G. Garofoli¹⁷⁷ highlights seven of the most important structural characteristics of a district, which include, first of all, the well developed division of labour among companies – members of the district. The division results in a dense network of intra-industry and inter-industry production interdependences, which reduces transaction costs between local companies. According to G. Garofoli, an industrial district also reveals strong production specialisation at company level, which stimulates the accumulation of specific knowledge, facilitates the implementation of new technologies and fosters the economic independence of individual entities by increasing work productivity. Another feature is the multiplicity of local economic operators, who together are much more capable of, e.g., finding solutions to arising production problems. For that to happen and to share conclusions or problem solutions, we need an efficient system of information exchange in the district. The system should ensure a quick and efficient flow of information, which would allow the knowledge of individual operators to be transformed into the “common economic heritage” of a district. The fifth characteristic is the absence of a leading company that would dominate the district. Tradition and knowledge embedded in history and transmitted from generation to generation within the local community should result in high vocational skills of workers employed by the companies in the district. The final condition to be met for an industrial district is the development of direct relations among its members. By this he does not only mean relationships between enterprises, but also contacts between enterprises and service companies or enterprises and R&D units. These mutual contacts should ease the exchange of information and the dissemination of technological and organisational solutions, which should lead to constant improvements in district productivity.

According to V. Capecchi we are dealing with an industrial district when:¹⁷⁸

- The production system is flexible enough to be able to adjust relatively quickly to the differentiated customers’ needs and, in specific cases, to quickly prepare and manufacture the products demanded by a customer;

¹⁷⁷ G. Garofoli, *Industrial districts: structure and transcreation*, w: G. Garofoli (ed.), *Endogenous development and Southern Europe*, 1992, pp. 49-60, quoted after J. Grzeszczak, *Bieguny wzrostu ...*, p. 41.

¹⁷⁸ V. Capecchi, *A history of flexible specialisation and industrial districts in Emilia-Romagna*, in: F. Pyke, G. Becattini, W. Sengenberger (eds.), *Industrial Districts and inter-company co-operation in Italy*, International Institute for Labour Studies, Geneva 1992, pp. 21-22.

- there are many small and very small businesses representing the same production flexibility;
- some of these companies sell their products directly on the market, while other focus on the processing or manufacture of parts for a future final product, i.e. there is phase-specific specialisation;
- businesses are divided into those that sell final products and subcontractors but the division is flexible and at any moment, if need arises, they may become either a sub-supplier, a subcontractor or the originator of the final product;
- relations between companies shift from competition to collaboration, which means that the companies do not fight with one another but try to find markets for new products without destruction or adverse effects inside a given industrial district;
- it is possible to distinguish a zone, a geographically limited area where a certain type of production prevails;
- there is a strong link between the district as a production location and its external world, which is a mix of family, political and social life.

The increasing popularity of the idea of an industrial district was behind the introduction into the Italian economic statistics of the idea that districts are identified on the basis of two criteria: “strong concentration of employment in certain areas (the so called local systems of industrial work), distinguished on the basis of the observations of the commuting to work and the share of people employed in a given industry exceeding the average share of employment in that industry for the whole country. In the Italian economic statistics, areas that meet both criteria are referred to as industrial districts and the industry that is most often represented decides on the district specialisation.”¹⁷⁹

Studies of Italian industrial districts gave an impetus to similar studies in other countries, particularly in the United States and in France. One of their results was the thesis that researchers dealing with new forms of regional growth are inclined to unify them and consider them another example of an industrial district.

1.4.3. Types of “new” industrial districts

One of the pillars of the Californian school of economic geography, M. Storper, based on broader observations at the beginning of the 1990s decided to distinguish a new, specific type of district, which he labelled a technology district. As exam-

¹⁷⁹ A. Surdej, *Polityka państwa ...*, p. 19.

ples of such districts he listed the Silicon Valley, the district of Modena in Emilia-Romagna and the *haute couture* district in Paris. His understanding of a technology district as a subsequent quality stage of the classical industrial district, modified by the introduction of some innovative changes, was adopted by many researchers. More or less at the same time similar conclusions were reached on the other side of the Atlantic Ocean by representatives of the French school: C. Courlet and B. Pecqueur¹⁸⁰. They considered the “technology districts to be the second generation of localised industrial systems equivalent to the Marshall industrial districts”¹⁸¹ and, contrary to the Italian industrial districts dispersed and embedded in the artisan tradition. These districts are mostly incubation systems based in cities. Another difference is the fact that their driving forces are big manufacturing enterprises and/or R&D units. In this case, SMEs become less important and are complementary *vis-à-vis* the two earlier mentioned groups of entities and the system as a whole.

Technopole (Fr. *le technopôle*), i.e., technology poles and technopolis (Fr. *la technopole*) are specific types of technology districts. The term technopole was born in France at the beginning of the 1960s but it entered the terminology at the beginning of the 1980s. A technopole is “a selection of enterprises, mostly small and medium-sized, offices, laboratories and manufacturing entities structured in a high quality environment. [...] Technology poles projects are based on the idea of “a proliferic mix”. [...] Pierre Laffitte (the founder of Sophia Antipolis) describes them as: Advanced technologies, research centres, enterprises but also financial institutions gathered in one location, which facilitates personal contacts between various circles and produces synergy effects where new ideas may emerge, together with technical innovations, which encourages the creation of new businesses.”¹⁸² The notion of a technopolis¹⁸³ came later and is broader than a technopole. “It is a modernised version of a technopole city in conditions of neoliberalism and decentralisation. It is a technology pole – or a collection of technology poles, and a city that plays the role of regional polarisation and combines the power of innovation and capabilities of regional development in one place and time.”¹⁸⁴ In simplifying, we may say that a technopolis is a city that is the source

¹⁸⁰ See C. Courlet, B. Pecqueur, Les systèmes industriels localisés en France: un nouveau modèle de développement, in: G. Benko, A. Lipietz (eds.), Les régions qui gagnent, PUF, Paris 1992.

¹⁸¹ J. Grzeszczak, Bieguny wzrostu ..., p. 47.

¹⁸² G. Benko, Geografia technopolii, Publishing House PWN, Warsaw 1993, pp. 13-14.

¹⁸³ The neologism of technopolis is proposed by the Japanese authors as a synthesis of scientific and industrial development (technology) and urban development (polis – city). The technopolis is a city of “industry”, i.e., under the present conditions the city of “advanced technologies”. See I. Pietrzyk, „Fenomen technopolii” a postęp techniczny i rozwój regionalny, Gospodarka Planowa, no. 8-9, 1989, pp. 42-43.

¹⁸⁴ G. Benko, Geografia ..., p. 14.

of technology innovation, which initiates economic development. Technopoles may develop on their own (e.g., Silicon Valley or Route 128) based on the existing micro-system of innovation dependent on relationships between research and industry or in a planned way (as an outcome of an industrial policy adopted by the government of a given country) aimed at “creating a context favourable for generating knowledge and technology and developing hi-tech products.”¹⁸⁵ This latter path was followed by technopolis like the above-mentioned French Sophia Antipolis or the Japanese “science city” of Tsukuba.

In the United States, in parallel to studies on industrial districts, representatives of the Californian school of economic geography, mainly A. J. Scott, M. Storper, and R. Walker, developed the approach based on the transaction costs theory. To start with, researchers took an interest in “metropolis in fact megalopolis, which they later recognised as a collection of various districts. These researches led to the formulation of the Coase-Williamson-Scott paradigm, according to which an industrial organisation is the effect of the impact of the costs of the internal organisation of a business and the cost of transactions between companies. Clustering companies in the same location minimise transaction costs”¹⁸⁶. “A company may be inclined to integrate vertically not only because of the economies of scale but also due to the “benefits of diversity”, i.e., seeking benefits in managing many production processes resulting from integration”¹⁸⁷. Since the increasing importance of benefits resulting from diversity favours the flexibility of a production system over the concentration in large enterprises taking advantage of the economies of scale, spatial Fordist systems (vertically integrated) should give way to clusters of enterprises seeking minimum transaction costs.

A. J. Scott came to the assumption that a metropolis with big production units is the heart of a district. Thus, he termed his concept a “flexible production agglomeration”. According to him, the emergence and development of production systems as identified in his concept, besides cooperation, proximity of location, dense network of mutual communication mixed with competition, relies on two more indispensable elements: an appropriate policy of public authorities and specific social and cultural conditions, such as developed cooperation networks of various economic institutions and informal social norms, which encourage local actors into the entrepreneurship.

¹⁸⁵ D. Maillat, S.-H. Bataïni, *Compétitivité des systèmes territoriaux de production: le rôle du milieu*, Communication pour le XXXVIII^e Colloque annuel de l'ASRDLF, IRER – Université de Neuchâtel, s. 13.

¹⁸⁶ G. Benko, *La science régionale*, PUF, Paris 1998, p. 99.

¹⁸⁷ G. Benko, *Geografia ...*, p. 26.

M. Storper, similarly to A. J. Scott, was of the opinion that non-economic factors, which he called untraded interdependencies between entities involved in economic activity, were most important for the development of a given area. "There are formal and informal rules of social life, behaviours and customs which coordinate actions in a regional economy. [...] This is a capital outside of the traditional institutions and factors mentioned in the textbooks of economics. The capital, according to Storper, is the real source of success of regional capitalism."¹⁸⁸ M. Storper was convinced, "that it is impossible to transfer interdependencies detected between companies and business environment organisations in Italy. The system of relationships depends on the institutions in their capacity of behavioural patterns shaped throughout centuries in a given community, which was also observed by R. Putnam. However, the conclusion concerning the immobility of such forms of organisation is not completely pessimistic. It suggests a recommendation that each territory may have a different form of industrial links with external organisations"¹⁸⁹.

Both Storper himself and other researchers starting from this assumption were making attempts to develop a complete typology of the new industrial districts.

M. Storper and B. Harrison¹⁹⁰ based their typology of the new industrial districts on the classification of districts, developed for this purpose, according to the relationships between production operators in a given district, their organisation and management. The idea was to facilitate the identification of the endo- or exogenous driving force of the development of a given district¹⁹¹. As a result, seven types of new industrial districts were listed, such as:

- primary industrial districts with extensive, non-hierarchical local industrial links and limited extra-local sales relations;
- districts with extensive local and extra-local links, non-hierarchical in principle;
- districts dominated by large local companies, with extensive local links and extensive, non-hierarchical extra-local links;
- districts with limited local links and extensive, non-hierarchical extra-local links;

¹⁸⁸ T. G. Grosse, Przegląd koncepcji teoretycznych rozwoju regionalnego, w: *Studia Regionalne i Lokalne*, 1 (8) 2002, European Institute of Regional and Local Development of the University of Warsaw, p. 39.

¹⁸⁹ J. Gancarczyk, M. Gancarczyk, *Konkurencyjność skupisk ...*, p. 87.

¹⁹⁰ See M. Storper, B. Harrison, *Flexibility, hierarchy and regional development: the changing structure of industrial production systems and their forms of governance in the 1990s*, *Research Policy*, 20, 5, 1991.

¹⁹¹ See J. Grzeszczak, *Bieguny wzrostu ...*, pp. 63-64.

- districts dominated by large companies with extensive local links and extensive, hierarchical extra-local links;
- “cathedrals in the desert”, i.e., districts dominated by large companies with limited local links and extensive, hierarchical extra-local links;
- districts with extensive hierarchical local links and limited extra-local links¹⁹².

The Italian textile districts in Prato and Carpi and the French shoe district in Romans are examples of the first type of new industrial districts. The best known, high-tech Californian districts in Silicon Valley and Orange County were classified as the second category, and the aviation industry district in Southern regions of California as the third category. In other cases examples were given such as, the French district of Oyonnax (type four), the Japanese district of automotive industry Toyota City (type five), the high-tech district in Montpellier (type six), and the automotive industry district in French Sochaux-Montbéliard.

Another typology of districts was developed by A. Markusen¹⁹³ based on the surveys conducted in the first half of the 1990s over regions located mainly in the US, Brazil, South Korea and Japan. Taking as starting point the assumption that not only industrial organisations based on small and medium-sized companies can be an effective form of local development in a given area, A. Markusen, besides Marshall’s district and its Italian variety, distinguished three additional types of districts:¹⁹⁴

- the hub-and-spoke district, where regional structure revolves around one or more industrial or service corporations that collabourate with a group of smaller enterprises, which are either their suppliers or benefit from the presence of major corporations and agglomerations, and of urbanised economies related to it (alternatively we may speak of stronger or weaker links between companies in the district);
- the satellite industrial platform - comprising mainly branch plants of absent multinational corporations; small companies in the district usually supply auxiliary services, however, links are related to dominant branches of multinational corporations; it is also hard to speak of any relations among branches in the district as these are linked mainly with their headquarters where all important decisions are made and, possibly, also with other branches of the same multinational corporation based outside of the district;

¹⁹² Ibidem, pp. 64-65.

¹⁹³ See A. Markusen, *Sticky Places in Slippery Space: A Typology of Industrial Districts*, w: *Economic Geography*, 72, 3, 1996, pp. 293-313.

¹⁹⁴ See J. Grzeszczak, *Bieguny wzrostu ...*, pp. 65-71.

- the state-centred district concentrated around one or more state institutions also referred to as a state-anchored district; institutions are dominant entities in the district, surrounded with small and medium-sized companies, which take care of the needs of the state institutions; the district is similar to the hub-and-spoke one; however, dominant institutions may be “self-sufficient” and do not use the services of local businesses; in such cases the structure of a district is closer to the satellite platform.

Examples of the first type include American Seattle and Brazilian San Jose dos Campos. The second type is represented, e.g., by the American Research Triangle Park and South Korean Kumi. The Brazilian Campinas and the Japanese Tsukuba are districts centred around big state institutions.

More or less in parallel with A. Markusen, S. O. Park¹⁹⁵, who collaborated with her, presented his typology of the new industrial districts by distinguishing nine types of the expanded and modified A. Markusen’s typology. The first type is the already described classical Marshallian district. The second is the supplier hub-and-spoke district dominated by big enterprises, which, on the one hand, are strongly linked with local small suppliers and, on the other hand, are equally strongly linked with suppliers from outside of the district. Big enterprises in the centre of the district become a sort of intermediary between small local businesses, which supply them, without enough potential to enter external markets. In the third type of districts, customer hub-and-spoke, these relations are reversed. Dominant big enterprises from the district are strongly linked with suppliers from outside of the district and have equally strong links with small local customers. Satellite districts are the fourth type and are already described in the typology of A. Markusen. Districts of the fifth and sixth type are developed varieties of types two and three, where, in the case of a developed supplier hub-and-spoke district, relations with local customers are stronger and in the customer hub-and-spoke district links with local customers are reinforced. As a result, small local businesses reduce investment costs and the system of mass production dominating in the district gradually evolves into flexible production. Such transition (to the developed form of a hub-and-spoke district) is possible directly from the level of the Marshallian district with one or more big enterprises operating at national or international level. When in a satellite district there is a network of links between branches of external corporations and local small suppliers or customers, we are dealing with districts that S. O. Park labels in his typology as customer satellite districts (if small local businesses are customers) or supplier satellite districts (if small local businesses supply certain goods used by branches of external, often

¹⁹⁵ See S. O. Park, Networks and embeddedness in the dynamic types of new industrial districts, *Progress in Human Geography*, 20, 4, 1996, pp. 476-493 and J. Grzeszczak, *Bieguny wzrostu ...*, pp.71-75.

multinational corporations, based in the district). The peak of the evolution is the pioneering high-tech district, where small, medium and big companies whose suppliers and customers are inside and outside of the district, live in symbiosis and collaborate although sometimes they are competitors. In such a system production is flexible and the labour market is integrated with a highly flexible available workforce. There are no clear leaders in the district that could dominate the operations of other businesses making their survival dependent on their own decisions. That probably explains why it is easier to arrive at such a district based on developed hub-and-spoke districts rather than developed satellite ones.

In his considerations on the new industrial districts S. O. Park stresses that a district at a lower development level does not have to develop into a higher, more perfect form. There are various reasons, such as big enterprises leaving a district, which may make a new industrial district regress.

1.4.4. The local production system (cluster)¹⁹⁶

The idea of local production systems and the concept of clusters usually identified with them are at present the most popular and the most intensely researched and developed approaches to the emergence of location-specific organised production systems. The territorial specificity in areas where local production systems emerge prevents us from speaking of one, ideal or optimum LPS model as we are dealing with their unlimited diversity or even multiplicity of spatial varieties or configurations within one territorial system¹⁹⁷.

In general, “local production systems are groupings of companies from related industries that cooperate with one another, and state institutions, industrial organisations, R&D centres, universities, and vocational schools concentrated in the same region”¹⁹⁸. C. Courlet defines a local production system as “a system of

¹⁹⁶ In literature there are some terms for the phenomenon. Depending on how French-language literature is translated, there are two terms characteristic for continental European regional policy: *les systèmes productifs locaux* and *les systèmes productifs territorialisés*, i.e., territorial or local production systems (TPS or LPS, respectively). The term “territorial” is broader as it refers not only to local but also to regional dimension. English-language literature, besides the term of local production systems, often uses local clusters or just a cluster. See A. Jewtuchowicz, I. Pietrzyk, *Rozwój terytorialny – Teoria a polska rzeczywistość (Przykład regionu łódzkiego)*, in: A. Klasik (ed.), *Zarządzanie rozwojem lokalnym i regionalnym w kontekście integracji europejskiej*, Biuletyn KPZK, Zeszyt 208, Warsaw 2003.

¹⁹⁷ “As an example we may quote that what in one country is the primary advantage of a TPS (e.g., small and medium-sized family businesses in Italy) may block their development and contribute to their fall (e.g., in France).”, I. Pietrzyk, *Polityka regionalna ...*, pp. 53-54.

¹⁹⁸ B. Szymoniuk, S. Walukiewicz, *Lokalne systemy produkcyjne jako stymulatory innowacyjności*, in: *Wspólna Europa – Przedsiębiorstwo wobec globalizacji*, SGH-PWE, Warsaw 2001, pp. 445-446.

businesses centred in proximity around one and the same industrial activity. These businesses maintain relations among themselves and with their socio-cultural environment. These are not only commercial relations but also the exchange of in-creation and creating positive external effects for a collection of companies”¹⁹⁹. According to I. Pietrzyk, “a TPS-type of production organisation is best suited to production processes segmented into phases and products, which implies a dense network of interdependences among businesses and an intense exchange and transfer of in-creation”²⁰⁰. The system helps to reduce transaction costs and improve the flow of in-creation, promotes the exchange of expertise, knowledge, and skills, together with the free exchange of new ideas so valuable for technology creation. [...] generates positive external effects, thus creating conditions for social and economic growth”²⁰¹. Needs, motives and benefits that are collaboration drivers for the businesses in a local production system are presented in Table 1.1.

Table 1.1 Needs, motivations, and benefits of inter-enterprise cooperation

Needs	Motivations	Benefits
1. Need to combine competencies and take advantage of know-how of other enterprises. 2. Distribute the onus of technological research and share resulting knowledge. 3. Offer better quality products and more diversified lines. 4. Increase competitiveness to be able to enter external markets. 5. Strengthen purchasing power. 6. Share resources, especially underused ones. 7. Divide risks and costs in the generation of new opportunities.	1. Generation of profit that cannot be obtained independently. 2. Stricter control of resources and competencies needed for innovation. 3. Synergy of economies of scale in production, marketing, and R&D. 4. Strengthening the ability to react to external shocks. 5. Control over potentially promising markets. 6. Economies of scope and emphasis on product differentiation. 7. Reduction and rationalization of R& D spending.	Marketing 1. New profitable product lines deriving from product development. 2. Reduction of costs and more efficient advertising. Personnel 1. Better personnel policies. Purchasing 1. Discounts from buying large quantities of raw materials. Production 1. Reduction of costs through the development of new production processes.

Source: M. S. Nagano, A. Iacono, E. E. Filho, *Cooperation, interaction and learning in local production systems: Evidence in Brazilian companies*, *African Journal of Business Management* Vol. 4(12) 2010, p. 2463.

¹⁹⁹ A. Hsaini, *Le dépassement ...*, p. 219.

²⁰⁰ It is not only about the division of labour within a production process sensu *stricto*, i.e., limited just to industrial enterprises, but also about the division among them and service companies working for them.

²⁰¹ I. Pietrzyk, *Polityka regionalna ...*, p. 56.

M. Porter, a representative of the Anglo-Saxon school of thought, when presenting his idea of a cluster, based it on a system of economic growth, which he developed and which is referred to as Porter's diamond or rhombus. It is composed of four primary elements that ensure the competitive advantage. "Firstly, they include classical production factors, such as the accumulation of capital, skilled labour force, technical and communication infrastructure. Secondly, cluster development is stimulated by the demand, mostly related to the regional markets, but also by the possibility to compete on external markets. [...] The third element includes the presence of related and supporting industries, which create the network of collaboration and competition in a region. The final element is the economic strategy of businesses and the cluster, which should be adjusted to the conditions of global competition and the economic structure of the region. Porter places the cluster against the social and institutional conditions specific for a given culture and economic structure."²⁰² According to M. Porter, a cluster "is defined as a geographical proximate group of inter-connected companies and associated institutions in a particular field, linked by commonalities and externalities. [...] Clusters differ vastly in depth and sophistication, however, their constituents are: end-product or service companies, suppliers of specialised inputs, components, machinery and services, financial institutions and businesses in related sectors. Clusters often include companies in downstream industries, producers of complementary products, specialised infrastructure providers, government and other providers of specific training, education, innovation, research and technical support (such as universities, think tanks, vocational training providers) and standard setting agencies. Government agencies that significantly influence a cluster can be considered to be a part of it. Finally, many clusters include trade associations and other collective private sector bodies that support the cluster members"²⁰³.

According to A. Hsaini²⁰⁴, the foundations of the economics of a local production system, i.e., the source of its productivity, consists mainly of agglomeration in external economies, in other words, in the continuous assessment of space and benefits. Agglomeration economies are defined as benefits of a 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 the market at national and international levels; reduced costs of mar-

²⁰² T. G. Grosse, *Przegląd koncepcji ...*, p. 37.

²⁰³ M. E. Porter, *Porter o ...*, p. 248.

²⁰⁴ A. Hsaini, *Le dépassement ...*, pp. 220-221.

ket entry. Finally, as we have already mentioned, agglomeration economies are also related to: an organised local labour market with high mobility of skills and competences among the businesses; labour relations based on individuality and knowing one another within a given community. Flexibility is then the key to the success of the local production systems. It makes the businesses within a system quickly adaptable to changing market situations and helps them respond to the evolving customers' needs. The proximity of companies in the system reduces the costs of logistics and transactions while mutual communication becomes not only less costly but more effective. Local purchases minimise the need to maintain inventories, eliminate costs of transport and shorten the delivery time²⁰⁵. Being a part of a territorial production system enhances the innovations in the individual companies of the cluster²⁰⁶. The above is feasible by combining rivalry and collaboration in the relations between the businesses. "Studies (...) showed that collaboration is feasible not only between complementary businesses but also between competing ones. It consists of solving the problems faced by all companies, such as the adoption of new standards, improved production techniques developed by the same laboratory. Cooperation in research and seeking new markets or exports of goods which develop the idea from local to global may be critical"²⁰⁷. Such operational strategy may be especially fruitful for small companies, which individually do not have enough potential to make investments connected with it. The improved development of the companies within the system is also influenced by a specific "pro-innovation climate" in their environment, which impacts all enterprises. The geographic proximity and the above mentioned climate facilitate the flow of increation and knowledge which is "in the air" in a given territory.

Universities and other R&D institutions as well as those offering support to entrepreneurship and technology transfer are vital for the process of innovation. However, the faster progress in science and technology also means higher costs of research and development works. A vast majority of economic operators are not able to allocate sufficient resources necessary to benefit from the scientific achievements. Access to missing finances should be provided by both commercial and quasi-banking institutions in a given territory or by other sources e.g. venture capital funds) which specialise in funding the commercialisation of new technological solutions and the initial stages of business activities or product develop-

²⁰⁵ B. Szymaniuk, S. Walukiewicz, *Lokalne systemy ...*, p. 447.

²⁰⁶ At present the assumption is that any local production system must be innovative to successfully participate in changes in economy related to globalisation, reflected mainly in the development of knowledge- and new technology-intensive sectors. Only such a system may effectively compete and improve social and economic level of a territory, on which it is based.

²⁰⁷ A. Jewtuchowicz, *Rozwój, ...*, p. 93.

ment. All of these entities should provide a proper institutional environment for companies within the system, conducive to its further development.

The adequate use of the territorial potential is also very much dependent on the public authorities, particularly local, which are directly responsible for decisions and actions undertaken with a view to improve it. On the one hand, they should provide freedom to the entrepreneurs but, on the other hand, they should regulate the development of the elements decisive for the establishment and growth of the local production system, i.e., the development of network of mutual links, partner relations and a climate of trust. Representatives of local authorities should coordinate all pro-development activities in a given area. We do not mean a situation where local administration would manage or supervise the system and its actors. Local authorities should not impose any concrete solutions but provide an incentive for desired changes and activities connected with them, offering assistance in their delivery.

The above-mentioned university-industry-government cooperation, which creates the so called Triple Helix²⁰⁸, is very important for creating innovation and assisting the competitiveness of the businesses within a cluster. The point is not just a simple interaction exchange but also the possibility to learn from one another and to take up roles traditionally assigned to entities from another sector (e.g., university entrepreneurship or developing education capacity in companies). The social capital, understood as “a collection of characteristics of society organisation, which includes: trust, norms and linkages, which may improve the efficiency of coordinated activities”²⁰⁹ largely determines the development of such relations within a territory.

Bearing in mind that each local production system is unique, we may, however, distinguish certain types thereof. For example Pecqueur²¹⁰ distinguished two basic types of LPS: a system of dispersed industrialisation and a system-incubator. The first one could be found in rural areas with a dense population and inhabited by a large number of young, active people. This LPS is also typical for enterprises that support crafts embedded in local culture, thus developing towards “industries of a complete production”. Finally, the system of dispersed industrialisation is based on the dynamics of the internal dominant and the strong interactions between the

²⁰⁸ For more see H. Etzkowitz, University-Industry-Government: The Triple Helix Model of Innovation, http://www.eoq.org/fileadmin/user_upload/Documents/Congress_proceedings/Prague_2007/Proceedings/007_EOQ_FP_-_Etzkowitz_Henry_-_A1.pdf.

²⁰⁹ Barnaszewski B.: Endogenne i egzogenne czynniki determinujące kształtowanie kapitału społecznego, [in:] Klimowicz M., Bokajło W. (eds.): Kapitał społeczny – interpretacje, impresje, operacjonalizacja, CeDeWu.pl, Warszawa 2010, pp. 53-54.

²¹⁰ See A. Hsaini, *Le dépassement ...*, p. 222.

economy and society. It develops without break downs, differently from the incubator-system. The system-incubator could be found mostly in urban settings. These are companies located in zones of reconversion to remobilise locally accumulated capabilities to develop new production in the future. Within the system-incubator the companies have an important role to play. Local community and other local actors join the system with some delay by getting involved in activities initiated by the companies. As we have already mentioned, the system-incubator is different from the first type as its companies adopt technologies, which develop stepwise and are based on break downs in referring to local skills.

Based on the criteria of size and ownership of operators within the clusters, J. Meyer-Stamer distinguished three categories:

- clusters close to the Italian industrial districts with the best known example being the famous American Silicon Valley. Such clusters are dominated by small and medium-sized enterprises that are specialised and which strongly compete but at the same time develop a system of networks based on trust. These factors enable flexible specialisation, high productivity and create significant innovation potential;
- hub-and-spoke clusters with big enterprises hierarchically linked with a wide group of SMEs (e.g. Seattle – Boeing or Toyota City). Such clusters are largely based on the power of the corporations but its operations are flexible and they exploit cost advantages;
- satellite clusters with a dominant share of SMEs dependent on external companies, where location economies result from lower costs (e.g., the Research Triangle Park in North Carolina or the Manaus region in Brazil)²¹¹.

Another typology of local production systems was developed by D. Maillat²¹², whose starting point was that “the organisational forms of the territorial production systems may be characterised following two main lines of thinking, i.e. functional logic and territorial logic. Businesses following the functional logic are organised hierarchically and vertically (decisions come from the top management). They place various functions (conceptualisation, production, sales, etc.) in different geographic locations to reduce the costs of production (labour, transport, taxes etc.). The territory is just the location, they do not integrate with it and its role is passive. Contrary to it, the territorial logic aims at the territorialisation of the company, i.e., at its inclusion into the territorial production system. Companies are organised in horizontal networks and the system is harmonised by the envi-

²¹¹ T. Brodzicki, S. Szultka, *Koncepcja klastrów a konkurencyjność przedsiębiorstw*, Organizacja i Kierowanie nr 4 (110), Warsaw 2002, pp. 5-6.

²¹² D. Maillat, *Globalizacja ...*, pp. 5-8.

ronment”²¹³ with the territory playing an active role as companies are integrated with it and contribute to its growth. In developing his typology of local production systems, D. Maillat used two additional criteria, i.e. the integration of the value added chain and the intensity of the relations among the companies in the region. In the first case we may speak of a complete or partial integration of the value chain in one business or dividing it into several companies located in a given territory, which helps distinguish systems with big enterprises representing various types of production and systems composed of individual enterprises or branches of corporations. The second criterion helps to separate the systems with interaction dynamics from those which are not complementary or where there is an interdependence among the operators.

Based on the above criteria, D. Maillat arrived at four types of territorial production systems (see Figure 1.4.).

Taking account of the abundance of organisational forms of territorial systems and even their numerous spatial configurations, M. Quévit and P. Van Doren developed a typology of possible development trajectories of production systems depending on their relations with a given territory:²¹⁴

- trajectory of science-based development, oriented towards technological creation as a result of the cooperation between R&D laboratories and high-tech companies; its success depends on the: proximity of the research centres, availability of labour at university level, existence of network of links among companies focused around specific technologies, and substantial support of
- R&D by the state;
- trajectory based on the strategic role of enterprises or big industrial companies in the globalisation, based on external effects, connected with the ability to organise production at global level; its success depends on the: development of higher order services, diversified and quick communications with the world and control of increation and existence of economies of scale connected with the metropolitan functions;
- trajectory based on the so called *rupture/filiations* logic, i.e., rupture (of the up-till-now development) and filiations (with skills); in this case the

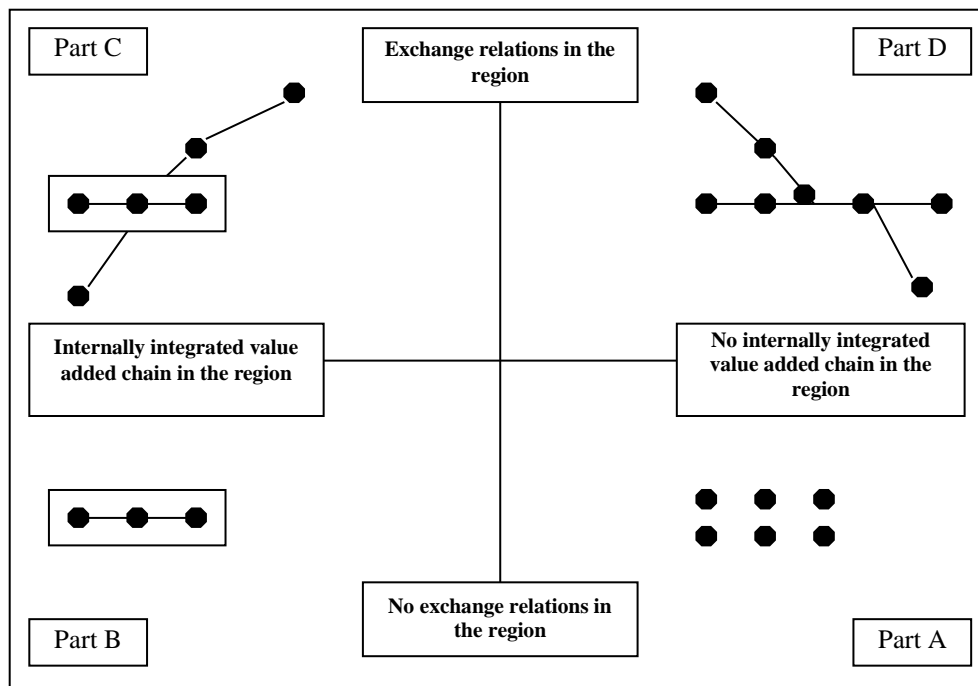
²¹³ Ibidem, pp. 5-6.

²¹⁴ M. Quévit, P. Van Doren, *Stratégies d'innovation et référents territoriaux*, w: *Colloque international*, Grenoble 1992, pp. 7-8; quoted after I. Pietrzyk, *Koncepcja terytorialnych systemów produkcyjnych w ekonomii zachodniej. Wnioski dla Polski*, in: H. Ćwikliński, G. Szczodrowski, *Dylematy i osiągnięcia polskiej polityki transformacji gospodarczej*, Department of Economic Policy of the University of Gdansk, Gdansk 1995, pp. 227-228.

trajectory is based on the existing industrial organisation and acquired skills, which exploit technology diffusion to modernise its production and diversify the output; it is typical of regions facing industrial restructuring where technological innovations may re-orientate the production assets to new types of production directly affiliated with the acquired skills²¹⁵;

- trajectory of “dispersed” development based on the endogenous potential of the local community; it uses local production traditions based on local links among companies and services. This type of territorial organisation, not oriented at technology development or high-tech production, tries to integrate with the globalisation of the economy by using technology innovation and flexible forms of local production and economic operations.

Fig. 1.4. Types of territorial production systems



Source: D. Maillat, *Globalizacja, terytorialne systemy produkcyjne i środowiska innowacyjne*, Rector's Lectures No. 52, Cracow University of Economics, Krakow 2002, p. 8.

²¹⁵ One of the best known examples of such trajectory is the evolution of the watch making industrial district in Swiss Jura, which evolved towards a technology district oriented at micromechanics. Jura with its centuries of watch making tradition, high technical culture and common skills very successfully restructured its economy, which was facing deep decline in traditional industry caused by Asian competition (mainly Japan).

The authors of the typology stress that the multiplicity of spatial configurations in territories may instigate several development trajectories and their interaction may start a new spatial dynamics specific for a given territory.

Concluding remarks

It is difficult to find one, universally accepted and binding definition of a local production system. Neither is there one, complete typology including all possible forms of their establishment and development. However, one could assume that there is a common conviction that local production systems are positive and bring benefits to its members and to territories. This is why the idea is accepted not only by researchers but also by business people and public authorities, especially at local levels. Understanding the idea and learning about benefits from its application is very important, considering the fact that a local production system should be established as a bottom-up arrangement. Attempts to impose the local production system as a top-down system usually fail, as it does not stand the test of time and dies before being fully developed.

1.5. The development of the economic theory in the area of the cluster forms of production

The nature, content and conceptual apparatus of the clustering processes and their relationship to the concept of new regionalism are uncovered. The methods of determination, together with the competitive advantages related to the enterprises' cluster development and the cluster policy in depressed regions are formulated. The criteria that can be the basis for clusters' target selection are adduced. The importance of the industrial cluster atmosphere in the region and of the humanitarian infrastructure is presented.

1.5.1. Problem definition

In economics there are a lot of "eternal" problems in all ages and for all people, which do not lose their relevance. Production, land, wealth, labour, capital, demand, supply, price, income, expenses - these and several other categories have been studied, thus deepening the knowledge about them. Among them, equal by value is the performance issue, caused by the production organisation, in which, since the time of Plato, representatives of social sciences have shown great interest. Different studies gave new meaning to the Adam Smith's system of production, which included the territorial factor and substantiated the thesis that the division of labour opens the possibility for public welfare within a limited area. Factors that encourage progress in local border production systems were investigated by Marshall in the second half of the nineteenth century. In "Principles of economics" (Principles of Economics, 1890-1891), he showed that the reasons for localisation are related to the natural conditions and the patronage of the court.

Nowadays, the latter can be interpreted as the creation by the government of conditions for capital inflows. The supply of basic tools, materials and means of communication arises around specialised subsidiary companies. This simplified scheme has significantly deteriorated today, but in a general it is obsolete. Moreover, in the context of globalisation, the problem of the territorial production organisation has exacerbated, taking into account the creation of alliances and mergers of companies, which are able to integrate the universal and local territorial advantages and achievements.

ANALYSIS OF RECENT RESEARCH AND PUBLICATIONS. Studies on cluster-based territorial distribution attracts the attention of many foreign researchers, especially of those working on the concepts of "new international economics", "new international trade" and "new economic geography". Among them are Becattini, Boschma, Brennan, Breschi, Duranton, Elsner, P. Krugman, Cooke, Lundvall, Malerba, Audretsch, M. Porter, Puga, Storper, Feser, M. Feldman, Hill and others. Most of the publications are exploring the specific directions of the cluster organisation. Cluster policy problems have caught the attention of several Ukrainian scientists and practitioners. In terms of clusters' implementation, the most famous works are presented by A. Annenkov, A. Varyanychenka, M. Voinarenko, N. Vnukova, V. Geets, B. Zheruha, V. Zaremskoho, V. Zakharchenko, V. Ivchenko, I. Kosach, A. Kuzmin, A. Melnuk, A. Olejnik, B. Paton, S. Sokolenko, C. Stupak, L. Fedulov, O. Himenka, O. Yashkin. Clusters' issues are covered by the publications of several regionalists (especially the cross-border cooperation), such as: I. Bakushevych, N. Blazhevych, N. Vnukova, V. Demchenko, T. Miller, N. Mikula, V. Podvysotskui. However, we can not see systematically analyzed and summarised results in the studies of foreign scientists. Nevertheless, the analysis of the fundamental issues associated with the theory and methodology of cluster establishment and functioning and the adaptation of Western models for Ukraine has not been performed.

1.5.2. Development of theoretical and methodological principles of the functioning of cluster-type production systems and their integral representation

The economic processes' globalisation has not decreased the importance of the local relationship. Vice versa, the need for finding new forms of localisation of the economic relations in the sphere of production, capable of being organic, but also a relatively autonomous part of the global economy, has intensified. One of these forms are the clusters which, although present in the economic history, have gained significant importance in our time and require a new thinking to meet the challenges of today. This task has been implemented within the concept of the "new regionalism", which is particularly popular among the economic geogra-

phers and representatives of related sciences²¹⁶. It shows that regional development should be based primarily on internal competitive advantages that are realised in the local economy and on the benefits of the cross-sector production under the transfer of significant powers carried out by the regional authorities. Thus, different corporations could be developed and could compete with other regions in creating favourable conditions for economic activities according to the laws of science, increation and innovation potentials.

However, according to some estimates, yet has been not enough insightful publications, which would critically analyzed the theoretical and practical components of the cluster concept in the system of the new regionalism²¹⁷. This lack of research partly explains the present situation, in which the "cluster" remains in different fuzzy and randomly interpreted concepts, which lacks scientific clarity and consistency. Finally, as noted by Steiner, "the pretty fuzzy nature of the clusters creates problems in developing their theoretically sound definition, empirical evaluation, recommendations for policy and evaluation of their effectiveness"²¹⁸. Despite this situation, the generally successful practice of using the cluster approach in the management of regional and local economies provides enough reasons for giving it priority in comparison with previous forms of local production systems.

The relationship between the new regionalism concepts and the cluster system of spatial production organisation could be of general and special nature. New regionalism is developing primarily as a global trend, and it clearly occur at international level. Its form is a collaboration of governments and non-state actors from the businesses and the civil society²¹⁹. The concept of new regionalism reflects the multilevel processes in the international relations in certain segments of the global space. They are flexible and can develop both in width (like BSEC) and in depth

²¹⁶ Lovering J. Theory Led by Policy: the Inadequacies of the 'New Regionalism' (Illustrated from the Case of Wales). – *International Journal of Urban and Regional Research*. – 1999, 23, pp. 379–395; MacLeod G. New Regionalism Reconsidered: Globalisation, Regulation and the Recasting of Political Economic Space. *International Journal of Urban and Regional Research*. – 2001, 25, pp. 804–829; MacKinnon D. Learning, Innovation and Regional Renewal: a Critical Appraisal of Current Debates in *Regional Development Studies* / MacKinnon D., Cumbers A., Chapman K. // *Progress in Human Geography*. – 2002, 26, pp. 293–311; Cumbers A. Institutions, Power and Space: Assessing the Limits to Institutionalism in *Economic Geography* / Cumbers A., MacKinnon D., McMaster R. // *European Urban and Regional Studies* – 2003, 10, pp. 327–344.

²¹⁷ Cumbers A., MacKinnon D. Introduction: Clusters in Urban and Regional Development / Andy Cumbers, Danny MacKinnon // *Urban Studies*, Vol. 41, Nos 5/6, 959–969, May 2004. – P. 959.

²¹⁸ Steiner, M. The Discreet Charm of Clusters: an Introduction, in: M. Steiner (Ed.) *Clusters and Regional Specialisation* – London: Pion, 1998. – P. 1.

²¹⁹ See: Vayrynen R. Old and New Regionalism // *International Studies Review*, Vol. 5, № 1, 2003, p. 26.

(the movement of the "Europe of regions" within the European Union). In the concept of new regionalism, the cluster form of production systems' organisation should be seen as the economic component of the territorial distribution of production related to the interests of the region in terms of providing a high life quality. At present, the cluster production organisation is acknowledged at national and supranational levels, thus accompanying its growing role in the world economy. This was reflected in the legislative and governmental decisions of a number of European and North American countries. Among them are the Government's Department of Trade and Industry of Great Britain²²⁰, the Organisation for Economic Cooperation and Development²²¹, and the European Commission²²². These measures were directed towards: support for R&D, establishment of cluster organisations, attracting venture capital and development of the cluster identity among joint ventures. On September 4th 2012, the Law of Ukraine "About the industrial parks" came into force. The law provides for the establishment of the first ten industrial parks. People support the cluster form of economic relations, focusing their efforts primarily on the use of the competitive advantages of the entities with geographic proximity, thus ensuring high productivity, growth and leadership in innovation.

The basis of all discussions on the meaning of the clusters was identified by M. Porter and was formulated by him back in the eighties of the last century. In his vision, "clusters are a geographic concentration of interconnected companies and associated institutions in a particular field. Clusters encompass a series of connected industries and other entities important from the point of view of competition. They include, for example, suppliers of specialised inputs - components, equipment and services, and providers of specialised infrastructure services. Clusters also often extend vertically - down the value chain - all the way to distribution channels and buyers, and horizontally - to manufacturers of complementary products and companies in industries related by type of labour, technology and production resources. Finally, many clusters include governmental and other institutions - universities, agencies on standardisation, think tanks, suppliers from the field of vocational education and trade associations - that provide specialised education and professional services, increation, research and technical support"²²³. Taking as a starting point the definition of M. Porter, we can develop the idea of a

²²⁰ DTI (Department of Trade and Industry). *Our Competitive Future: Building the Knowledge Driven Economy*. Cm 4716. – London: DTI, 1998.

²²¹ OECD (Organisation for Economic Cooperation and Development). *International Conference on Territorial Development. Local Clusters, Restructuring Territories*. – Paris, January, 2002.

²²² European Commission. *Regional clusters in Europe. Report to the Enterprise Directorate General by KPMG Special Services*. – EIM Business & Policy Research; ENSR. Brussels: European Commission, 2002.

²²³ Porter M. *Konkurencija*. – M.: Izdatel'skij dom «Vil'jams», 2005. (in russian) – C. 256. Porter M. E. *Clusters and the New Economics of Competition*. – *Harvard Business Review* 76, 1998, P. 78.

cluster due to the variations in the business combinations, taking into account local or regional, sectoral or inter-sectoral, national or international, knowledge-oriented or applied principles. At the same time, the viewpoint of M. Porter that clusters can be tied to the region or appear at national level, should be accepted.

The development of the cluster production organisations in qualitative and quantitative aspects attracted the attention of various specialists. It is clear that, first of all, the cluster is the object and subject of research in economics and geography areas. In the studies carried out from economic point of view the emphasis is placed on sectoral and inter-sectoral relations and those inherent in competition²²⁴. On the other hand, for the geographers (taking into account their professional competence), problems of economies agglomeration in the industrial area and the spatial concentration of production and businesses, are much more important²²⁵.

Looking back at the history of the economic thought, the concept of the geographical cluster theory grew out of the industrial area (Industrial Districts) taking into account the development within rigid territorial limitations. This solved the problem of finding such competitive advantages, which cover the competitive benefits of an open economy. Alfred Marshall identified two efficient production systems: large, vertically integrated production unit and concentration of many small factories that specialised in carrying out certain phases of the overall production process within a given territory. The issue of the industrial area received a more detailed development in the research of “post-ford” flexible specialisation carried out by G. Becattini. In his interpretation, they take the form of functional density in industrial agglomerations, in which are integrated the interests of the society and the business²²⁶. Under the concept of A. Marshall, the benefits of the industrial agglomerations are formulated by modern researchers. They define three possibilities for reducing the costs of local origin: growth of intermediate and ancillary industries, which provide specialised services; development of skilled labour pool; development of the neces-

²²⁴ Porter M. E. *The Competitive Advantage of Nations*. – Basic Books: New York, NY, 1990; Porter M. E. *Clusters and the New Economics of Competition*. – *Harvard Business Review* 76, 1998, 77–90; Audretsch D. B. *Knowledge Spillovers and the Geography of Innovation and Production* / Audretsch D. B., Feldman M. P. // *American Economic Review* 86, 1996, pp. 630–640; Yamawaki H. *The Evolution and Structure of Industrial Clusters in Japan* // *Small Business Economics* 18, 2002, pp. 121–140.

²²⁵ Doeringer P. B. *Business Strategy and Cross-Industry Clusters* / Doeringer P. B., Terkla D. G. // *Economic Development Quarterly* 9, 1995, 225–237; Markusen A. *Sticky Places in Slippery Space: a Typology of Industrial Districts*, *Economic Geography* 72, 1996, pp. 293–313.

²²⁶ Becattini G. *From Marshall's to the Italian "Industrial Districts"*. A Brief Critical Reconstruction / [Electronic resource]. Access mode: http://www.tci-network.org/media/asset_publics/resources/000/000/685/original/becattini_marshall.pdf.

sary infrastructure and other collective resources²²⁷. This approach is now complemented by factors related to knowledge and increation spillover²²⁸.

However, in the context of the intended transition to a knowledge-based economy, in more modern works we can see different approaches used, which emphasize the effects of knowledge and increation flow. The organisation of the cluster production systems in our time requires the definition of their competitive advantages and the development of a system for using them. The current practice in solving this problem is based on the so-called "Diamond" model of competitive advantages also known as the "diamond of competitive advantage", developed by M. Porter, which is based on statistics of more than 100 companies²²⁹. The Porter's system defines the key elements of the environment that affect its international competitiveness. It is clear that the cluster establishment and the process management are related to competitiveness potential, which is provided by the elements of the diamond. Their interpretation in relation to the clusters identified by K. Shtainle, G. Schiele, and K. Mittsner is as follows²³⁰:

1. Factor conditions can be divided into "basic factors" such as natural resources and unskilled labour, and "higher-order factors" such as highly qualified personnel, for example engineers and scientists. Competitive advantages largely depend on the availability and effectiveness of higher-order factors that are unique to clusters and are difficult for other actors to imitate;

2. In this perspective, the presence of highly experienced clients is important, as it affects the quality standards, innovations and technological progress of the nation;

3. Availability of related and supporting industries is also important, as they can be used for the exchange of ideas, knowledge and skills. The availability of local suppliers and companies that use similar or identical technology to produce complementary products, provides for the development of cost-beneficial cooperation, such as joint ventures, able to develop R&D projects;

²²⁷ Malmberg A. The Elusive Concept of Localisation Economies: Towards a Knowledge-Based Theory of Spatial Clustering. / Malmberg A., Maskell P. // *Environment and Planning A*, 34, 2002, pp. 429–449.

²²⁸ Malmberg A. The Elusive Concept of Localisation Economies: Towards a Knowledge-Based Theory of Spatial Clustering. / Malmberg A., Maskell P. // *Environment and Planning A*, 34, 2002, pp. 429–449; Storper M. *The Regional World: Territorial Development in a Global Economy*. London: Guildford Press, 1997.

²²⁹ Porter M.E. *The Competitive Advantage of Nations*. – Free Press, New York, 1990; 1998.

²³⁰ Steinle C. Merging a Company-centred and a Regional Policy Perspective for the Assessment of Regional Clusters: Concept and Application of a "Dual" Approach to a Medical Technology Cluster / Claus Steinle, Holger Schiele, Kai Mietzner // *European Planning Studies* Vol. 15, No. 2, February 2007. – P. 237.

4. Company strategy, structure and competition play an important role in the diamond model of M. Porter. The provision of a strong basis for local competitors is one of the main incentives for innovation and modernisation.

These four determinants form a correlated and dynamic complex, where each element affects the other three. The simultaneous presence of all factors, combined with bilateral interdependence between all determinants, creates an environment which promotes the establishment of clusters.

Clusters' creation is not a mechanical process, leading to changes in existing partnerships or giving priorities to regional or local companies to place orders. The cluster organisation is usually caused by the need of a greater or a lesser change in the internal organisation of the enterprises-members of the association. In addition they need to adapt their goals and mission. At first, the leading enterprises are trying (and often unsuccessfully) to assume additional orders. At the same time, they are enlarging themselves, and to a certain extent are subordinating the subcontractors. Relatively new in this process is the establishment of business groups, which are acquired or newly opened by one business owner, irrespective of the industrial and quantitative differences between them.

At present, in the economic science there is no a developed theory under which it would be possible to predict the impact of the cluster organisation on the development of the enterprises involved in its structure. Apparently, for the majority of the companies, this development is related to changes in their internal organisation, size, number of employees, management etc. The empirical analytical calculations and studies are based on experience and organisational knowledge. Often the changes are not related to the available resources of the company and its management. Therefore, many enterprises, being part of a given cluster, (despite their different subject specialisation) legally belong to the same owner. This provides for the acceleration of the cluster establishment and adjustment of its effective functioning.

Studies show that the establishment of business groups occurs in two ways. The first one is through the creation of new companies or the acquisition of existing ones, which reflects the impact of the industrial agglomeration on the organisational forms. In the same time, we can see the trend of wider prevalence of groups in the industrial areas, rather than abroad. In addition, the groups in the industrial districts are less diversified and more spatially concentrated than the groups beyond the industrial districts²³¹.

²³¹ Cainelli G. Spatial Agglomeration and Business Groups: New Evidence from Italian Industrial Districts. / Cainelli G., Iacobucci D., Morganti E. // *Regional Studies*, Vol. 40.5, July 2006, p. 508.

The organisation of the cluster forms has not yet reached the level of development, which allows national specifics, (for example in the multinational companies) and the differences between them (determined mainly by sectoral factors) will not be considered. Within that context, Fezer and Bergman developed the idea of national cluster templates²³². The basis of their theory is provided by the defined by M. Porter “factor-creating” values with prevailing linkages in the region²³³. While creating a cluster, they serve as a "roadmap" for the planners of the regional development. Thus, all members of the cluster could take advantage of a triple effect related to the industry competitive advantages, the competitive advantages of the region and the synergistic derivatives. This cluster strategy should be based on the competitive advantages of the region without losing the sectoral advantages related to the obligatory "cultivation" and initiation of new activities.

As the American experience shows, the use of national cluster patterns has great prospects in regions that are experiencing fewer clusters. In the USA these are the textile clusters in the South-Eastern regions²³⁴. The Centre for Economic Education and Research of Cincinnati (Ohio State) has developed an identification of the industrial clusters in order to focus the efforts on the economic development. It has formulated six criteria that can be the basis for target clusters' selection²³⁵:

- a cluster should provide high average wages, positively impacting local revenues;
- a cluster should provide a strong basis for employment (percentage of employees in a particular cluster region) and for success (except for those regions that are trying to shift to another industry);
- a cluster should cover an area that is not limited to the development of the local economy and create or expand the export base in order to attract outside capital to the region, thus contributing to its economic development on multiplier basis;
- a cluster should include public enterprises and local authorities, indicating its strong presence in the region in relation to the national economy;
- a cluster should contribute to the growth of the employment of the population;

²³² Fezer E. National industry cluster templates: a framework for applied regional cluster analysis / Fezer E., Bergman E. // *Regional Studies* 34, 2002, pp. 1–19.

²³³ Porter M.E. Clusters and the New Economics of Competition / *Harvard Business Review*. – 1998. – P. 76.

²³⁴ Is given by the source: Kelton C. M. L. Using the North American Industry Classification System (NAICS) to Identify National Industry Cluster Templates for Applied Regional Analysis / Kelton C. M. L., Pasquale M. K., Rebelein R. P. // *Regional Studies*, Vol. 42.3, April 2008, pp. 317.

²³⁵ Kelton C. M. L. Using the North American Industry Classification System (NAICS) to Identify National Industry Cluster Templates for Applied Regional Analysis / Kelton C. M. L., Pasquale M. K., Rebelein R. P. // *Regional Studies*, Vol. 42.3, April 2008, pp. 317-318.

- a cluster should contribute to a significant increase in the economy, due to the use of local factors.

In the development of local level cluster policy the size of the country, the industry branching of the economy and the regional specialisation are taken into account. Thus, the number of clusters and their specialisation should be defined. For certain areas of the country with high industrial concentration the previous economic development is also taken into account. This is of particular importance for the well-known and internationally competitive clusters. This technique has been successfully used in Brazil for large clusters, and for local production systems, for example: the aviation cluster EMBRAER in São José dos Campos, the cluster in the field of telecommunications equipment in Campinas and several other clusters in traditional industries such as footwear, furniture, ceramics, textiles and clothing²³⁶.

In Ukraine it can be adopted for clusters of aviation, metallurgy and some manufacturing industries. In general, the establishment of cluster-type organisational associations is applicable to the science-oriented sectors and sectors with real growth prospects, using the "economies of scale" ideology. As to the traditional sectors, this legal form is not essential for them.

Studies on cluster problems pay undeservedly little attention to the territorial aspect. Today we could not be entirely satisfied with the reference to M. Porter, regarding the limitation of a cluster by a certain territory. As a rule, under this statement there is a hidden subtext - for the cluster creation a defined administrative unit should be elected. The epistemological roots of this understanding lie in the practicality of the founders, for whom it is easier to deal with a minimum range of officials. However, the success of the cluster is related to a flexible approach because in some cases the cluster borders may not coincide with the administrative division. In the spatial approach should prevail the delimitation of the territorial competitive advantages that you can use for successful functioning of the cluster. Among them one could mention: avoiding high costs in the dense urban environment, transport facilities, availability of skilled labour, access to innovation resources and more.

Marshall has studied the tendency of transition from dominant significant relations between companies of one industry, to the creation of small, committed to each other and vertically integrated groups of companies, which are largely hidden for the external environment and form a kind of "export economy". Marshall Cook summarised the idea as based on three key elements of proximity: territorial

²³⁶ Suzigan W. Local production and innovation systems in the state of Sao Paulo, Brazil / Wilson Suzigan, Joao Furtado, Renato Garcia, Sergio Sampaio, Sergio Sampaio // The 43rd European Congress of the Regional Science Association (ERSA 2003) – University of Jyväskylä – Finland.

concentration of subcontractors; freely available skilled labour; rapid formal and informal communication through shared knowledge of companies, employees and society. Marshall described the concept of collective knowledge within the industrial zones as "industrial atmosphere", which you can also define using the phrase "knowledge (about production) is in the air"²³⁷.

While discussing the meaning of the "industrial atmosphere" concept, it should be noted that for A. Marshall, it has predominantly intellectual and spiritual content. For him it is predominantly a socio-economic climate, which exists in a given location, with its formal and informal customs, traditions, direct and indirect involvement in production and business. For example, in Ukraine this kind of knowledge in the field of coal industry is typical for Donbass; marine affairs - Odessa, forestry - Ivano-Frankivsk, vegetables - Kherson, sugar beet and potato - Ternopil etc. Without rejecting the industrial components of the atmosphere mentioned above, in nowadays the territorial space related to the clusters is crucial, as in the "industrial atmosphere" prevails the pervasive taste of creativity.

Efforts to create an attractive investment climate expand the orientation of the public authorities in setting-up favourable conditions for business in national, regional or even local areas. In this respect, clusters are developing as a form, in which the best results in the competition for the development of high-tech industries and products could be achieved. Active participants in the cluster are primarily small and medium enterprises. However, multinational companies are also interested in this form of production organisation, as they are looking for cooperation with cluster companies taking into account the new competitive advantages of local character.

Cluster form of production, became very popular, due to the big effectiveness in the use of new knowledge and the development of innovative technologies and products. The experience of the Silicon Valley shows, that within the global circulation of scientific and technological achievements, local leaders are appearing around highly productive systems, which become successful in global competition context. Lessons from the Silicon Valley indicate that the clustering advantages for companies can be detected from the development of specialised agglomerations with a sufficiently broad geographic network. Companies located in the centre of the cluster, should use local assets, borrowing also global resources from the key flows of knowledge, increation and skills.

The viability of the innovative clusters is largely dependent on the infrastructure related to the human resources. Particularly important role in the functioning of the clusters is played by the scientific and educational institutions that have a unique value for the local development. Ideally, in the areas, covered by the clus-

²³⁷ See: Cooke P. *The Rise of the Rustbelt*. London: UCL Press, 1995.

ter, the scientific and educational institutions should be among the global leaders. Besides offering to the cluster companies new ideas, these institutions get orders from the business, provide the necessary experimental basis and receive funding for the development of research and training activities.

The above presented cluster organisation can be particularly important for Ukraine. With the reduction of funding for science and education, and the increasing liability of local authorities in terms of unemployment reduction and new jobs' creation (especially for young people), efforts should be focused on the development of local industrial structures of regional character. The most promising approach in this respect is to promote and encourage university research in the development of new innovative products. In this regard, the cluster policy should take into account the international experience in regional centres development. Particular attention should be paid to the new generation of professional research companies and universities. A key factor may be the inclusion of trans-disciplinary research networks with sufficient resources.

The local dimension of the cluster relationships (incl. these with scientific and educational institutions) does not play the dominant role. Studies show that a high level of competitiveness could be achieved through the development of external (incl. international) relations²³⁸. Thus, analysing the activities of the cluster software, Oslo Isaksen shows that at the initial stage of the association the direct contacts and the interaction between consulting companies, customers and suppliers are very important. The spatial proximity facilitates the face-to-face knowledge sharing. However, these benefits for the "new" cluster should be considered as "embryonic", as the further growth of the created potential will require the development of foreign economic relations and broader institutional support²³⁹.

In economics, we still have a "white" spot, which is the problem of the cluster policy for peripheral (depressed) regions. The vast majority of scientists focus on finding the forms and mechanisms of creation and functioning of clusters in developed regions, with strong R&D and manufacturing resources. As to the depressed regions or the regions that due to some new trends emerging from crisis need revival at least in the traditional areas of activity, the adaptation of the cluster forms to their enlargement objectives is not well explored. Currently, in the literature on regional issues one dominant point of view is that the economy can revitalize the disadvantaged areas through appropriate policy knowledge and in-

²³⁸ Cumbers A. et al. Innovation, Collaboration and Learning in Regional Clusters: a Study of SMEs in the Aberdeen Oil Complex / Cumbers A., Mackinnon D., Chapman K. // *Environment and Planning A*, 35, 2003. Pp. 1689–1706.

²³⁹ Cumbers A. et al. Introduction: Clusters in Urban and Regional Development / Andy Cumbers, Danny MacKinnon // *Urban Studies*, Vol. 41, Nos 5/6, May 2004.- P. 966.

novation²⁴⁰. We can also see the development of research on the recovery of the old industrial regions. For them, as the analysis shows, the problem is not so much related to the lack of adequate institutional saturation (institutional thickness), but to the legacy of collective thinking, based on old technology and «ways of doing»²⁴¹.

Possible solution was given by G. Grabher, using the phrase "cognitive lock"²⁴². The way out is clear: the cluster must adopt innovative solutions, thus providing a way out of its traditional creative fields. It means, that the old habits should be taken away, thus leading to the release from the past, that in the authorship of Johnson is called "institutional forgetfulness"²⁴³.

The initial conditions for the development of regional clusters are often related to the classic version of their origin or creation²⁴⁴. The possibilities for cooperation within a metropolitan business region should be clarified, despite the presence of competition between them. An important part of the cluster policy should be the establishment of a network of local service providers and customers for large enterprises through outsourcing of some of their functions. A special role is played by the universities and research institutions able to contribute to the implementation of an innovation policy. As a consequence, we could expect the participation of different small and medium sized enterprises. Finally, a system of vertical or horizontal cooperation within the region should be developed.

The new theoretical approaches to the development of cluster production systems are based on the concepts of the evolutionary and institutional economics and transaction. With this in mind, the often used theoretical system (comprising flexible specialisation, social construction, domestic, local or regional labour markets, regional networks) is focused on the environment model. While talking about the

²⁴⁰ Top of this research work was carried out in: Cooke P. *The Rise of the Rustbelt*. London: UCL Press, 1995; Florida R. *Towards the Learning Region*. *Futures*, 27. 1995, pp. 527–536; Morgan K. *The Learning Region: Institutions, Innovation and Regional Development*. - *Regional Studies*, 31(5), 1997, pp. 491–504.

²⁴¹ See: Braczyk H. J. et al. *Regional Innovation Systems: The Role of Governance in a Globalised World* / Braczyk H. J., Cooke P., Heidenrich M. (Eds). – London: UCL Press, 1998.

²⁴² Grabher G. *Rediscovering the Social in the Economics of Interfirm Relations*, in: G. Grabher (Ed.) *The Embedded Company: On the Socio-economics of Industrial Networks*. – London: Routledge. – 1993.

²⁴³ Johnson B. *Institutional Learning*, in: B.A. Lundvall (Ed.) *National Systems of Innovation*. – London: Frances Pinter, 1992, pp. 20–43.

²⁴⁴ Markusen A. *Sticky places in slippery space: a typology of industrial districts*, *Economic Geography*, 1996, 72, 293–313; Enright M. J. *Regional clusters: what we know and what we should know*, in Broecker J., Dohse D., Solt-Wedel R. (Eds.) *Innovation Clusters and Interregional Competition*. – Berlin: Springer, 2003, pp. 99–129; Matuschewski A. *Regional Clusters of the Increation Economy in Germany* / Anke Matuschewski // *Regional Studies*, Vol. 40.3, May 2006. – P. 410.

regional level, three approaches to create clusters can be used. In the publications of Hanson, Glaeser, Scott, Storper we can see the development of the functional organisation idea, in which the flexible specialisation and cooperation in the area of scientific and technological development are dominant²⁴⁵. Another option is presented in the research of Bramanti, Harrison, Gordan, Johnson, Gregersen, Morgan, Ratti, Shtorper²⁴⁶. It consists of introducing social and creative collaboration that focuses on regional patriotism, based on the exchange of information through personal relationships and building an environment of trust. Among the scientists in economic geography cluster systems with local dimensional shape (spatial entity) are discussed²⁴⁷. They give priority to the physical factors and the cultural advantages of the territory, taking into account its business climate and the willingness of the population to change.

Concluding remarks

1. Discussions on the cluster organisation of the production systems are developed in the European and American scientific literature with a focus on the new challenges faced by the world economy. They are associated with the theories of "new regionalism" and "new geography". The organisational mechanism developed provides for the use of the competitive advantages of the entities' geographical proximity without losing the advantages of the globalisation benefits, thus ensuring high productivity, growth and leadership in innovation.

²⁴⁵ Scott A. J. High Technology Industry and Regional Development: a Theoretical Critique and Reconstruction / Scott A. J., Storper M // *International Science Journal*. – 1987, 112. – Pp. 215–232; Glaeser (2000) *The New Economics of Urban and Regional Growth*. // in Clark G. L., Feldman M. P. and Gertler M. S. (Eds) *The Oxford Handbook of Economic Geography*. – Oxford: Oxford University Press, 2000. – Pp. 83–98; Hanson G. H. Companies, Workers, and the Geographic Concentration of Economic Activity // in Clark G. L., Feldman M. P. and Gertler M. S. (Eds.) *The Oxford Handbook of Economic Geography*. – Oxford: Oxford University Press, 2000. – Pp. 477–494.

²⁴⁶ Morgan K. The Learning Region: Institutions, Innovation and Regional Development. - *Regional Studies*, 31(5), 1997, pp. 491–504; Porter M.E. Clusters and the New Economics of Competition / *Harvard Business Review*. – 1998. – Pp. 76–90; Storper M. Flexibility, Hierarchy and Regional Development: The Changing Structure of Industrial Production Systems and Their Forms of Governance in the 1990's / Storper M., Harrison B. // *Research Policy*, 1991, 20. Pp. 407–422; Storper M. Flexibility, Hierarchy and Regional Development: The Changing Structure of Industrial Production Systems and Their Forms of Governance in the 1990's / Storper M., Harrison B. // *Research Policy*, 1991, 20. Pp. 407–422.

²⁴⁷ Maillat D. Interactions between Urban Systems and Localised Productive Systems: An Approach to Endogenous Regional Development in Terms of Innovative Milieus / Maillat D. // Working Paper, 1997, No. 9701b. IRER, Neuchatel. Werle R. Verbände und Multimedia in der Region. Empirische Befunde aus Baden-Württemberg / Werle R., Meisheit B. // *Arbeitspapier der Akademie für Technikfolgenabschätzung 80* – Stuttgart: Werle & Meisheit, 1997.

2. Clusters' establishment requires changes in partnerships for the benefit of local enterprises, subordination to the leading enterprises in a given cluster, development of business groups with involved and newly established companies.
3. The feasibility of clusters' establishment depends on different criteria related to: ensuring a high average wage, employment basis development, export potential creation, national business leaders' involvement, and local economy growth.
4. Cluster policy should be focused on new knowledge implementation and development of innovative technologies and products that fit the human resources' infrastructure, especially scientific and educational institutions.
5. Clusters are considered an effective form for depressed areas' development and revitalization (rebirth) of old industrial regions.

1.6. Main LPS theories: The concept of agglomeration economies and its evolution from the perspective of LPS's functions

1.6.1. Agglomeration economies as a main factor explaining the spatial concentration of economic activities

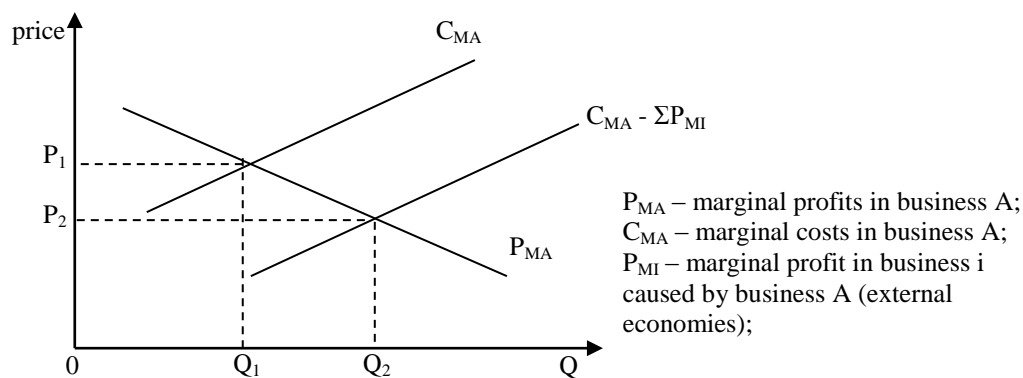
In general, agglomeration economies are external benefits resulting from the clustering of population, facilities, production, services, trade, etc. in a small area. From a macroeconomic point of view, agglomeration economies impact on the usefulness of businesses and households, although these entities, being recipients of external effects, have no impact upon their intensity. In graphic representation, in relation to a single company, when these effects are missing, optimum output would be established at the point, where marginal profit curve intersects the marginal cost curve of economic activity (see Q_1 on Fig.1.5.). However, if operations of company *A* are influenced by other economic entity, marginal cost can be reduced (e.g. when spatial concentration of businesses representing one industry leads to the emergence of a higher number of subcontractors, who, under the pressure of intensified competition, reduce prices of their products). Then, as a result of externalities, company *A* may offer consumers Q_2-Q_1 more goods at lower prices by P_1-P_2 (see Fig. 1.5.).²⁴⁸

The term "externalities" in this sense was introduced to economics by A. Marshall in his work "Principles of Economics". Analysing the problems of industry concentration and possibilities to reduce unit costs of production, he distinguished two types of benefits connected with increased output, i.e. internal economies dependent on the resources of individual businesses, their organisation and man-

²⁴⁸ A. Jewtuchowicz, Efekty zewnętrzne w procesach urbanizacji i uprzemysłowienia, Acta Universitatis Lodzensis, Lodz, 1987, p. 69.

agement efficiency and external economies resulting from general economic development.²⁴⁹ Gradually, division into the so called pecuniary and technological externalities was introduced.²⁵⁰ Pecuniary externalities appear when profits of one group of companies depend on the size of production and outlays made by other economic operators. They act directly through the market and with the intermediary of the price mechanism.²⁵¹ Technological spillovers mean that the entrepreneurs, by their production-related activities, directly impact the operational conditions of other entities, i.e., externalities appear when the production of one company also depends, besides internal factors, on the production of other companies. These interdependences add-up to market mechanism and, because of that, they are difficult to measure using classical economic methods.²⁵² As R. Domański observed, technological externalities are often a “black box” containing the important competence of complex non-market institutions, whose role and importance are strongly highlighted by economic geographers and spatial analysts.²⁵³

Fig. 1.5. Optimum output in the presence of external benefits



Source: A. Jewtuchowicz, *Efekty zewnętrzne w procesach urbanizacji i uprzemysłowienia*, Acta Universitatis Lodzensis, Lodz 1987, p. 68.

²⁴⁹ A. Marshall, *Zasady ekonomiki*, Wydawnictwo M. Arota, Warsaw 1925, pp. 256-259 (orig.: A. Marshall, *Principles of Economics*, Macmillan, Londyn 1920); cited by A. Jewtuchowicz *Efekty zewnętrzne ...*, op. cit., 1987, p. 18.

²⁵⁰ J. Viner, *Cost curves and supply curves*, “*Readings in Price Theory*”, 1931, pp. 198-231; cited by A. Jewtuchowicz, *Efekty zewnętrzne ...*, op.cit., 1987, p. 21.

²⁵¹ T. Scitovsky, *Two concepts of external economies*, “*Journal of Political Economy*”, Nr 2, 1954, pp. 443-451; cited by A. Jewtuchowicz, *Efekty zewnętrzne ...*, op.cit., 1987, p. 41; A. Cieślak, *Geografia inwestycji zagranicznych*, Warsaw University Press, Warsaw 2005, p. 118.

²⁵² M. E. Sokołowicz, *Region wobec procesów globalizacji - terytorializacja przedsiębiorstw międzynarodowych (na przykładzie regionu łódzkiego)*, Doctoral Theses in Economics and Management, Lodz 2008, pp. 32-33.

²⁵³ R. Domański, *Ewolucyjna gospodarka przestrzenna*, Publishing House of the Poznan University of Economics, Poznan 2012, p. 44.

In the literature we can also come across the division into public and private externalities.²⁵⁴ If economic interdependence impacts only a few operators we are dealing with private externalities. When it impacts a substantial population, externalities become public and, as such, represent the characteristics of public goods, which justifies the development of the public sector in the economy.

The concentration of businesses and households in a relatively small space remains one of the main sources of external economies. It is a situation where the users get access to various benefits, leading, e.g., to the reduction of unit cost of production, market expansion, operating in a better developed labour market, ensuring a variety of consumer choices or exploiting the economies of scale when infrastructure is used by a relatively numerous group of users. In economic terms, agglomeration economies are the most fundamental way of explaining why economic activities tend to concentrate in space. The economic rationale behind forming big groups of population and businesses surely lies in the higher productivity and increasing returns, which they ensure to their participants.²⁵⁵

1.6.2. Classification of agglomeration economies

The reasons for the concentration of economic activities can be divided into those that remain exogenous in relation to space and those that are endogenous (see Fig. 1.6.) with agglomeration economies belonging to the second category. Sources of exogenous economies do not refer to externalities but to aspects connected with the geographic location, which impacts minimally on the costs of transport, proximity of raw materials, etc., i.e., with location factors analysed by classical location theories usually from the perspective of a single company or a single household. Sources of endogenous economies are usually divided in literature into those resulting from economic specialisation and those from the diversity of economic structure. The first are referred to as *Marshall-Arrow-Romer (M-A-R)*²⁵⁶ agglomeration economies, or just *Marshallian effects*, while the second ones are called J. Jacobs-type effects.²⁵⁷

²⁵⁴ R. Cooter, Th. Ulen, Law and Economics, C. H. Beck, Warsaw 2009, p. 208.

²⁵⁵ R. Lucas, 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.

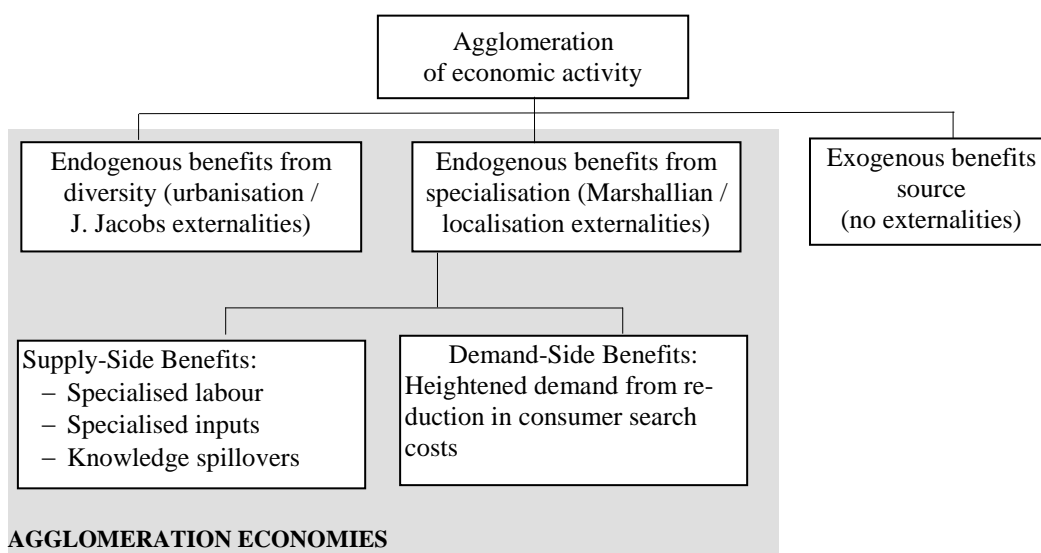
²⁵⁶ E. Glaeser, H. D., Kallal, J. D. Scheinkman, A. Schleifer, Growth in Cities, "Journal of Political Economy", 1992, no. 100, pp. 1126-1152; G. Panne van der, Agglomeration externalities: Marshall versus Jacobs, „Journal of Evolutionary Economics”, 14, 2004, pp. 594-595.

²⁵⁷ Jane Jacobs was the first researcher who drew attention to the fact that differentiation of social (and economic) structure, typical of big cities, is an unique value (J. Jacobs, The Economy of Cities, Random Mouse, New York 1969).

Economies of the first type are usually attributed to the following sources:²⁵⁸

1. A labour market that is rich in skills as a result of the economic specialisation of a given area;
2. The easy access to companies manufacturing particular goods or rendering specific services within forward and backward cooperation linkages; relatively low prices of these goods and non-traded local inputs; the ease of establishing forward and backward cooperation linkages;
3. the increation and tacit knowledge spillovers referred to by A. Marshall as “industrial climate” leading to better innovativeness.

Figure 1.6. Classification of reasons for the concentration of economic activities – agglomeration economies



Source: B. T. McCann, T. B. Folta, *Location Matters: Where We Have Been and Where We Might Go in Agglomeration Research*, “*Journal of Management*”, Vol. 34 No. 3, June 2008, p. 534.

The size and quality of the labour market are important for the entrepreneurs seeking skilled workers and for the working population. Companies searching the market to find highly skilled workers, facing the need to constantly adjust their offer to customers’ needs, are looking for flexible labour markets, where their searches are quick and do not involve excessive cost. Such labour markets are usually situated in big urban agglomerations. On the other hand, highly skilled employees, the most demanded on the labour market, usually invest substantial financial resources in developing knowledge and skills. Looking for a job in ag-

²⁵⁸ Ph. McCann, *Urban and regional economics*, Oxford University Press, 2001, pp. 55-57.

glomerations, which offer better chances of finding a satisfying job, allows them to discount their intellectual capital more quickly.

The dense concentration of many suppliers and demanders in a given space leads to a situation in which uncertainties are compensated by the diversity of partners, ensuring the quick access to needed resources. Hence the global increase in the importance of *face-to-face* contacts as a way of reducing uncertainty and building mutual trust among potential partners in a constantly evolving environment. As a result, the ease of searching for business partners is important both in financial (lower prices caused by competition) and technological terms. Even in times of rapidly developing transport and communication technologies leading to significant reductions of costs of virtual transactions, direct contacts with a view to concluding contracts and agreements between companies still remain a vital element that is decisive for the reduction of transaction costs.²⁵⁹

Finally, spatial proximity of a large number of entities linked with a dense network of bilateral relationships creates conditions necessary for the fast and frequent exchange of information. Specialised regional economies are areas of intense knowledge dissemination, which supports innovation and generates growth in the long-term. Companies are involved in formal and informal cooperation arrangements, which support their interactions and contribute to the building of mutual trust and to achieving common economic objectives.²⁶⁰

²⁵⁹ Among transaction costs we can mention the costs of: searching for contractors, negotiating agreements, administrative contract fees, potential securitization of contracts as well monitoring contractors in order to avoid their unreliability (see e. g. P. G. Klein, Transaction cost economics and the New Institutional Economics; [in:] Klein P. G. Sykuta M. E. (eds.), The Elgar Companion to Transaction Cost Economics, Edward Elgar Publishing, Cheltenham-Northampton 2010, pp. 27-35). Transaction cost economics is one of the main strands of the so-called institutional economics. According to its main assumption, what can minimise these costs is the choice of a proper organisational form of economic activity (e. g. decide whether to pursue a particular economic activity within the hierarchical structure or carry it on the market), but also the existence of the system of formal and informal institutions, ensuring transparency of transactions and reducing the risk of failure (M. E. Sokołowicz, Institutional Economics - a Potential Tool of the Research on Socio-economic Development of Regions; [in:] A. C. Novoselov (ed.), Problems of the Socio-economic Development of the Siberia Region. Collection of academic papers of the Institute of Economics and Industrial Engineering of the Siberian Branch of Russian Academy of Science, Novosibirsk 2013, p. 298).

²⁶⁰ See B. T. Asheim, Industrial Districts: the Contributions of Marshall and Beyond, [in:] G. L. Clark, M. P. Feldman, M. Gertler, The Oxford Handbook of Economic Geography, Oxford University Press, Oxford, 2000 and: G. Becattini, The Marshallian Industrial District as a Socio-Economic Notion, [in:] F. Pyke, G. Becattini, W. Sengenberger (eds.), Industrial Districts and Inter-company Cooperation in Italy, International Institute of Labour Studies, Geneva 1990, pp. 37-51; cited by A. Scott, M. Storper, M., Regions, Globalisation, Development, "Regional Studies", vol. 37 (6&7), 2003, pp. 579-593.

Besides the supply-side effects, demand-side benefits are important constituents of the Marshallian agglomeration economies. Concentration of businesses and households in space guarantees a higher demand, connected not only with better access to demanders (benefits for suppliers) but also with reduced demanders' cost of looking for suppliers (benefits for demanders). This element of external economies was already discussed by A. Marshall and gradually attention was paid to the fact that demand-side agglomeration economies will be particularly visible in these sectors of the economy, where the ability to directly learn about the features of a product is vital²⁶¹ and where product variety is wide.²⁶² On the demand side there is also the utility mechanism of CES (*constant elasticity of substitution*).²⁶³ Nevertheless, the statement that agglomeration economies on the demand side result in reduced transaction costs of matching sellers and buyers is the subject of relatively little interest among the economists. This is mainly due to methodological limitations, since analyses are in most cases limited to models including two businesses operating on linear markets (in terms of space)²⁶⁴ under the assumption of equal distribution of demanders and no *ex-ante* market needs analyses.²⁶⁵

Contrary to the above type, the agglomeration economies of J. Jacobs focus on positive aspects relating to the diversity of economic structures. Such economies are external *vis-à-vis* the economy but endogenous for the examined spatial arrangement (city, selection of cities, region, etc.). They emerge when one type of economic activity contributes to the enhanced marginal productivity of other types of activities as a result of the proximity of their locations (*cross-product increasing returns*). It is also worth pointing out, that these types of agglomeration economies not only reduce the "cost of searching" (e.g., suppliers, demanders, goods needed by consumers) but also creates possibilities for coming across situations that may give rise to an impulse or inspire an innovation. The above is demonstrated by studies that attempt to link the classification of agglomeration economies with product and industry life cycles. There is a clear tendency, following which, M-A-R externalities increase with subsequent maturity stages of an industry, while *Jacobs* externalities observed in young industries diminish in more mature sectors or even record negative effects. Young industries tend to select loca-

²⁶¹ K. Stahl, Differentiated Products, Consumer Search, and Locational Oligopoly, "Journal of Industrial Economics", 31(1/2), 1982, pp. 97-113.

²⁶² J. H., Fischer, J. E. Harrington, Jr., Product Variety and Company Agglomeration, "RAND Journal of Economics", 27(2), 1996, pp. 281-309.

²⁶³ Differentiation of products or inputs activates forces leading to production concentration as the more varieties of a given product, the higher its utility (A. Cieřlik, Geografia ..., op. cit., p. 124).

²⁶⁴ See Harold Hotelling's linear city model (H. Hotelling, Stability in Competition, "Economic Journal", 39 (153), 1929, pp 41-57).

²⁶⁵ B. T. McCann, T. B. Folta, Location Matters: Where We Have Been and Where We Might Go in Agglomeration Research, "Journal of Management", Vol. 34 No. 3, June 2008, p. 538.

tions of high diversity, where the environment is conducive to innovation and creativity even if they come at a high price; mature industries prefer cheaper locations with high specialisation-bound benefits and relatively substantial marketplaces (see Table 1.2.).²⁶⁶

Table 1.2. Agglomeration economies and the dynamics of the life cycle of products and sectors

			Industry life cycle		
			Young	→	Mature
Urbanisation	Cost of production factors	High prices of land	0		-
		High salaries and wages	0		-
		Congestion	0		-
Knowledge	Skilled labour force	+		0	
	Knowledge infrastructure	+		+	
Market reality	Access to big marketplaces	0		+	
	Access to demanding marketplaces	+		0	
MAR agglomeration	Cost of production factors	Low cost of adjustments on the labour market	0		+
		Low cost of inventories	0		+
		Low cost of transport in value added chain	0		+
Knowledge	Skilled labour force	0		+	
	Easy dissemination of knowledge in industry	+		+	
	Easy joint efforts for innovation in cases of collaboration within value added chain	0		+	
Market reality	Easy access to specialised suppliers and demanders	0		+	
Jacobs agglomeration	Cost of production factors	Large diversity of products and services	+		0
		Avoiding a too narrow perspective	0		-
	Knowledge	Easy dissemination of knowledge across industries	+		0
Market reality	Reduced changeability of demand and supply	+		0	
“+” – expected positive effect “0” – change is not expected/ economies and diseconomies set off “-” – expected negative effect					

Source: F. Neffke, M. Henning, R. Boschma, K.-J., Lundquist, L.-O, Olander *The Dynamics of Agglomeration Externalities Along the Life Cycle of Industries*, “Regional Studies”, Vol. 45.1, 2011, p. 54.

²⁶⁶ F. Neffke, M. Henning, R. Boschma, K.-J., Lundquist, L.-O, Olander, *The Dynamics of Agglomeration Externalities Along the Life Cycle of Industries*, “Regional Studies”, Vol. 45.1, 2011, pp. 49-65.

In the classification of agglomeration economies one more type needs to be mentioned which is named after E. Hoover²⁶⁷ - urbanisation economies. These are economies resulting from the urban development processes, which translate into the higher utility of their users resulting from the economies of scale. In this context, urbanisation economies should be considered in the broadest category compared against the former ones, which covers, e.g.,²⁶⁸: transport arrangements and the reduction of costs of transport (urban areas as transport hubs); rich and diversified labour markets offering benefits to both employers and employees; economies of scale when it comes to the use of technical and social infrastructure and, therefore, diminishing marginal costs and charges for its use; developed institutional environment (universities, research centres, fund-raising organisations, etc.); and more rapid dissemination of knowledge, which leads to higher innovation and creativity.

We must stress that, as in a single company, economies of scale in production, having reached a certain level, may become diseconomies of scale. In addition, location economies may, by assuming negative marginal values, lead to net agglomeration diseconomies in various locations. Agglomeration diseconomies include: increased prices of construction land (as a result of increasing income and demand for real estate), diminishing profitability of companies as a result of increasing wages, congestion, diminishing quality of public services, environment or, e.g., enhanced scale of social pathologies.

Consistently, while in the initial period of development of a city or region we can observe increases in its inhabitants and users due to increasing labour productivity and marginal utility of households, after a certain threshold has been reached, a reverse phenomenon may occur. Thus, we may propose a thesis that a decision on location within an agglomeration or outside of it is taken by a business or a household based on the analysis of the overall balance of agglomeration economies and diseconomies.²⁶⁹

We should also add that, with reference to the analysis of agglomeration economies or diseconomies, technological progress (in transport, construction, communication technologies and social innovation) plays an important role. With the passing of time, this factor may delay the moment that agglomeration diseconomies become tangible

²⁶⁷ E. M. Hoover, *Location of Economic Activity*, PWN, Warsaw 1962.

²⁶⁸ M. E. Edwards, *Regional and Urban Economics and Economic Development. Theory and Methods*, Auerbach Publications, Taylor and Francis Group, New York 2007, pp. 121-123; R. Domański, *Gospodarka...*, op. cit., pp. 32-33.

²⁶⁹ H. Knödler, U. Alberthäuser, *Glocalisation, Foreign Direct Investment and Regional Development Perspectives: Empirical Results for West German Regions*, HWWA Discussion Paper no. 117, Hamburg, 2001, p. 14. Available at: <http://econstor.eu/bitstream/10419/19434/1/117.pdf>. Accessed on 28.08.2013.

(e.g., developments in automotive industry or efficient collective transport in an agglomeration is allowed to choose locations distant from the centre).

1.6.3. Empirical evidence and the evolution of the agglomeration economy concept (towards a dynamic approach)

In spite of abundant theoretical achievements in the area of spatial concentration of economic processes and its long history, empirical studies on agglomeration economies started relatively recently (in the 1980s).²⁷⁰ Among the most often cited groundbreaking works we may list the studies of Anna Lee Saxenian on the phenomenon of the Silicon Valley (1994)²⁷¹, Michael Porter's surveys of clusters²⁷² or the works by G. Beccatini and his collaborators from the University of Florence, which "refreshed" the Marshallian concept of an industrial district with reference to the so called "Third Italy".²⁷³ The works devoted to innovative milieus of the research group GREMI²⁷⁴ headed by Ph. Aydalot cannot be overestimated. These surveys focused mainly on the social context of the economic processes based on case studies of the Silicon Valley, Cité Scientifique based south of Paris or in regions of the "Third Italy".²⁷⁵ Besides, many detailed analyses concerning selected industries were drafted by economists and representatives of management sciences.²⁷⁶

²⁷⁰ B. T. McCann, T. B. Folta, *Location Matters...*, op. cit., pp. 532-565.

²⁷¹ A. Saxenian, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*, Harvard University Press Cambridge 1994

²⁷² M. E. Porter, *Clusters and the New Economics of Competition*, "Harvard Business Review", 76(6), 1998, pp. 77-90; M. E. Porter, *On Competition*, Harvard Business School Press, Cambridge 1998.

²⁷³ The term is used to describe selected Italian regions and to distinguish them from the so called "First Italy", i.e. industrialised and highly developed Northern regions (mainly urbanised areas like Turin, Milan or Genova) and the "Second Italy", i.e. underdeveloped regions of the South (Mezzogiorno). The term "Third Italy" includes dynamically developing regions, whose growth accelerated in 1970s and 1980s as a result of the dynamic development of SMEs within local production systems, which were able to compete as a result of their ability to cooperate based on informal relations and mutual trust as well as the ability to innovate (Emilia-Romagna, Tuscany, Umbria, Veneto, Friuli-Venezia Giulia, Trentino-Alto Adige).

²⁷⁴ Groupe de Recherche Européen sur les Milieux Innovateurs – an international research group, which for many years has been studying regional development mainly in the context of creation and functioning of the so called innovative milieus.

²⁷⁵ A. Scott, *Economic Geography: The Great Half Century*; [in:] G. L. Clark, M. P. Feldman, M. S., Gertler, *Oxford Handbook of Economic Geography*, Oxford University Press, 2000, pp. 29-30.

²⁷⁶ We may also mention studies on the concentration of economic activities in the hotel industry (W. Chung, A. Kalnins, *Agglomeration Effects and Performance: A Test of the Texas Lodging Industry*, "Strategic Management Journal", 22(10), 2001, pp. 969-988; B. T. McCann, G. Vroom, *Pricing Response to Entry and Agglomeration Economies*, "Strategic Management Journal", vol. 31, 2010, pp. 284-305), industrial processing (J. M. Shaver, F. Flyer, *Agglomeration Economies, Company Heterogeneity, and Foreign Direct Investment in the United States*,

The issue of agglomeration economies is a very complex one and nowadays the difficulties of measuring it are often highlighted, particularly in relation to the so-called *spillovers* and other, non-pecuniary externalities. The majority of empirical studies conducted within the framework of *urban and regional economics* accompany the impact of agglomeration economies, mainly of the M-A-R type, as they detect a positive correlation between the concentration of businesses representing the same or similar industries and indicators such as work productivity, the number of start-ups or increased employment in an industry.²⁷⁷ Studies that link economic activity concentration and prices in a given industry seem particularly reliable. For example, studies by B. T. McCann and G. Vroom revealed that agglomeration economies may lead to a situation where, paradoxically, new entrants into the same industry in the same location make the incumbents raise their prices as they will treat the entry as an opportunity, not a threat.²⁷⁸

Similar empirical evidence comes from the studies of urbanisation economies. For example, Stuart Rosenthal and William Strange concluded in their analyses that the doubling of population in a given area increases work productivity at a rate of 3-8%.²⁷⁹ Comparing the two types of agglomeration economies in empirical studies does not let us decide unambiguously which one prevails over the other.²⁸⁰ The advantage comes from the presence of auxiliary factors, such as the industry specific for a given area, diversification of the economic structure in the territorial unit in question, structures of markets on which businesses operate²⁸¹, industry life cycle²⁸², number of businesses in the industry, sensitivity to costs of transport²⁸³, and also, for example, at which geographic level the analysis takes place.²⁸⁴

“Strategic Management Journal”, 21(12), 2000, pp. 1175-1193), shoe industry (O. Sorenson, P. Audia, *The Social Structure of Entrepreneurial Activity: Geographic Concentration of Footwear Production in the United States, 1940-1989*, “American Journal of Sociology”, 106(2), 2000, pp. 424-461), semi-conductors (P. Almeida, B. Kogut, *The Exploration of Technological Diversity and the Geographic Localisation of Innovation*, “Small Business Economics”, 9(1), 1997, pp. 21-31), or biotechnology (O. Sorenson, P. Audia, *The Social Structure...*, op. cit., pp. 424-461).

²⁷⁷ See: A. O’Sullivan, *Urban Economics*, McGraw Hill-Irwin, New York 2007, pp. 46-47.

²⁷⁸ B. T. McCann, G. Vroom, *Pricing Response...*, op. cit., p. 303.

²⁷⁹ S. Rosenthal, W. Strange, *Evidence on the Nature and Sources of Agglomeration Economies*; [in:] V. Henderson, J.-F. Thisse (eds.), *Handbook of Regional and Urban Economics 4: Cities and Geography*, Elsevier, Amsterdam 2004, chapter 49. Cited by A. O’Sullivan, *Urban Economics*, McGraw Hill-Irwin, New York 2007, p. 49.

²⁸⁰ See e. g. M. E. Edwards, *Regional and Urban Economics...*, op. cit., p. 124.

²⁸¹ G. Panne, van der, *Agglomeration externalities...*, op. cit., pp. 593-604.

²⁸² B. T. McCann, G. Vroom, *Pricing Response...*, op. cit., pp. 284-305.

²⁸³ See L. Bertinelli, J. Decrop, *Geographical Agglomeration: Ellison and Glaeser Index Applied to the Case of Belgian Manufacturing Industry*, “Regional Studies”, 39 (5), 2005, pp. 567-583.

²⁸⁴ The problem is defined in the methodology of spatial studies as the so-called MAUP (modifiable area unit problem) problem, which occurs when the number, size or even shape of analysed territori-

In general, however, the overview of studies that point to the tendency to agglomerate, accompany the tendency while the overview of studies which make an attempt to prove the impact of agglomeration on productivity does not deliver such clear-cut results.²⁸⁵ Location economies are not easy to analyse as the relatively easy-to-measure high concentration does not always reflect the real dynamics of relationships in a given industry. For example, in many traditional industries there may be many businesses employing many workers, however, concentration indicators in such cases will tell us nothing about the level and mechanisms of their cooperation. In other words, concentration indicators measure only the economic specialisation, not the dynamic location economies.²⁸⁶

In practice it means the need to continuously look for various research approaches and methods, often of a qualitative nature and based on sciences other than economics. Thus the accomplishments of institutional economics may make a valuable input in explaining economic phenomena in space.

This is important because, as with social and economic advancements, the identification of the concentration of human activities in space (agglomeration) is not more than the first stage in modern spatial analyses. G. Colletis and B. Pecqueur drew attention to the above by distinguishing three stages of regional development, i.e. agglomeration (clustering), specialisation, and specificity.²⁸⁷ The creation of clusters (agglomeration) consists of the concentration of various activities in a given geographic space. At this stage of development, pecuniary agglomeration economies, relatively easily measurable, prevail. Specialisation is based on the presence of an organised economic structure in a given territory, dominated by one industry or one product. At this stage, technological externalities gain in importance. These effects are reflected in the presence of educational centres linked with the territorial specialisation, technical centres and other institutions and entities providing technical assistance, developing joint export strategies, etc.²⁸⁸

Importantly, as long as the agglomeration stage is dominated by individual interests of participating actors, the stage of specialisation witnesses the emergence of

al areas impact empirical results, thus limiting or eliminating the efficiency of concentration indicators (see e.g. L. Bertinelli, J. Decrop, *Geographical Agglomeration...*, op. cit., o. 568).

²⁸⁵ B. T. McCann, T. B. Folta, *Location Matters...*, op. cit., pp. 538-540.

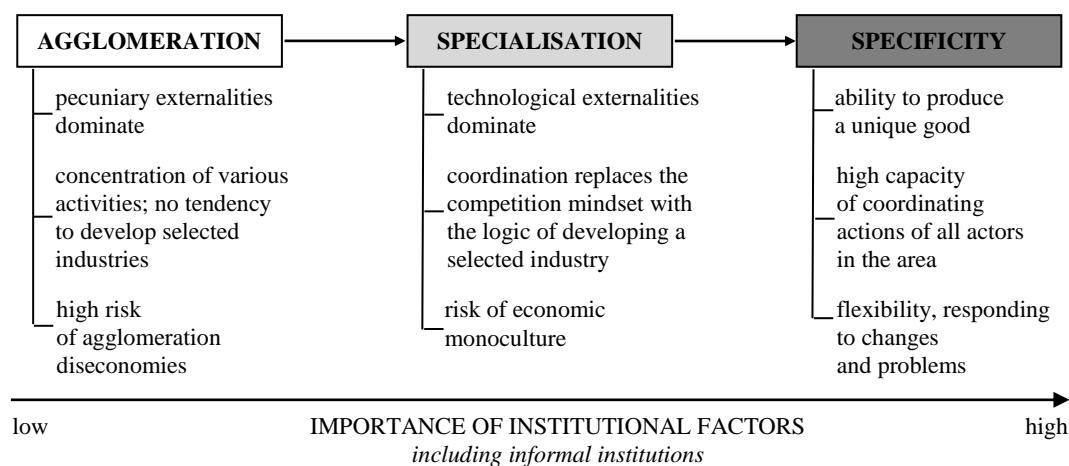
²⁸⁶ M. Feldman, *Location and Innovation...*, op. cit., pp. 283-384.

²⁸⁷ G. Colletis, J.-P. Gilly, et al, *Construction territoriale et dynamiques économiques*, "Sciences de la Société", 48, 1999; B. Pecqueur, *Le développement local; pour une économie des territoires*, deuxième édition revue et augmentée, Syros, Paryż 2000. Cited by A. Jewtuchowicz, *Terytorium i współczesne dylematy jego rozwoju*, Publishing House of the University of Lodz, Lodz 2005, pp. 130-134.

²⁸⁸ A. Jewtuchowicz, *Budowa konkurencyjności regionów. Rozważania na temat dynamiki rozwoju terytorialnego*; [in:] Brol, R. (ed.), *Gospodarka lokalna i regionalna w teorii i praktyce*, Research Papers of the Wrocław University of Economics, Wrocław no. 1023, 2004, p. 351.

“coordination among economic actors, which contributes to the creation of a sort of “public good” linking the strategies of all entities”.²⁸⁹ At this stage we can see the prevalence of the institutional factors over the pecuniary externalities.

Figure 1.7. Stages of territorial development and the evolution of the concept of agglomeration economies



Source: own studies based on A. Jewtuchowicz, *Terytorium i współczesne dylematy jego rozwoju*, Publishing House of the University of Lodz, Lodz 2005, pp. 130-134.

The most advanced stage of the economic activity concentration and territorial development is the one of territorial specificity, meaning the ability to produce unique good, facing no competition and inherently linked with a specific production process and concrete territory. The ability results from coordination within the territory in question, which engages all of the local actors (businesses, authorities and other institutions).²⁹⁰

The above is an attempt to highlight the evolution of the concept of agglomeration economies, which initially focused on the measurable effects of a concentration of people and businesses. Particularly, a productive branch of studies on agglomeration economies of this kind was initiated in 1980s by P. Aydalot. He promoted the setting up of an international research group aimed at specifying the conditions for the emergence of the so-called innovative milieus in agglomerations.²⁹¹ According

²⁸⁹ A. Jewtuchowicz, *Budowa konkurencyjności...*, op. cit., p. 352.

²⁹⁰ A. Jewtuchowicz, *Budowa konkurencyjności...*, op. cit., p. 353.

²⁹¹ The already mentioned Grupe de Recherche Européen sur les Milieux Innovateurs (GREMI). Its founding members came from France, Belgium, Switzerland, Italy, Spain, the United Kingdom, the U.S, Germany and Poland.

to B. Gruchman, GREMI sourced three disciplines from the achievements, i.e. the theory of economics of collective actions, sociology when it comes to the concept of social capital, and institutional economics and rules of conduct (formal and informal).²⁹² Thus, it preferred the dynamic analyses over the static ones and stressed that the essence of agglomeration economies in increasingly complex and innovation-oriented economic systems depends on mutual trust, the sense of cohesion and belonging, the opening-up to cooperation and synergy as well as the individual and team input into the good reputation of a given area. All of these contribute to the strengthening of the ability of a given milieu to generate innovation and open external innovative impulses.²⁹³ In other words, the concept of agglomeration economies clearly evolved towards institutional trends in economic analyses, mainly the economics of proximity.²⁹⁴

Considerations about agglomeration economies and their role in the concentration of economic activities and people should be supplemented with the observation that the phenomenon is the principal method of explaining why various versions of the so-called “territorial forms of production organisation” emerge.

With reference to other (also local production systems) manifestations of the mechanism of agglomeration economies, we need to refer to their roots as embedded in the works of Alfred Marshall, who coined the term of the so-called *industrial district*, as a way to explain the increasing work productivity resulting from the proximity of businesses.²⁹⁵ The merger of economic, social and cultural resources of an area in question within a district creates an additional development factor that is equally important as traditional factors of production. Since that moment, the concentration of businesses is no longer perceived as only a group of

²⁹² B. Gruchman, *Od aglomeracji do klastrów przemysłowych i środowisk innowacyjnych*; [in:] M. Klamut (ed.), *Polityka ekonomiczna. Współczesne wyzwania*, Publishing House PWN, Warsaw 2007, p. 208.

²⁹³ R. Camagni, *Conclusion et regard sur l'avenir*, [in:] R. Camagni, D. Maillat, *Milieux inovateurs. Théorie et politiques*, Economica, Paris 2006. cite by B. Gruchman, *Od aglomeracji...*, op. cit., p. 208.

²⁹⁴ The economics of proximity comes from the tradition of the French school of economics, and specifically from the informal group of researchers dealing with the economics of industry, who in 1990s initiated the studies of the so-called Proximity Dynamics. Consequently, the objective of these economists was (and still is) to endogenize the spatial variable in economic theory. The definition of proximity refers to the existence of interactions between economic actors. These interactions have a spatial as well as an organisational nature. This is the very foundation of the economics of proximity, which refutes the exclusive reference to transport costs as in the standard analysis. It rather concentrates on the issues of division of labour and technological spillover effects, involving both social and economic dimensions, but never before deeply analyzed (A. Torre, J.-P. Gilly (edited by M. W. Danson), *Debates and Surveys: On the Analytical Dimension of Proximity Dynamics*, “Regional Studies”, vol. 34.2, 2000, pp. 173-175.

²⁹⁵ Original English edition: A. Marshall, *Principles of Economics*, Macmillan, London 1920

separate economic entities based in a given area, but as a network based on mutual relations and trust, with clear external effects of cooperation.

The idea of industrial districts provided the basis for works on many other forms of production organisation in space.²⁹⁶ Among them we can mention the concepts of neo-Marshall industrial districts (known also as Italian industrial districts)²⁹⁷, new industrial spaces²⁹⁸ or the concepts of local production systems.²⁹⁹ Other derivative concepts include: innovative milieus (Fr. *milieux innovateurs*³⁰⁰), regional systems of innovation³⁰¹, the concept of a learning region³⁰², or the theory of clusters as disseminated by M. Porter³⁰³, often criticised by many authors.³⁰⁴

A. Jewtuchowicz distinguishes five important forms of territorial production organisation claiming that, with the advancements of research in many countries and by various research groups, the phenomenon has only recently become the object of systemic research, with the first attempts of a synthetic approach. In general,

²⁹⁶ A broad overview of the territorial forms of production organisation is presented in Chapter 1.4 of this monograph, by J. Chądzyński. Broader presentations are available in the following publications: S. Cruz, A. Teixeira, A New Look into the Evolution of Clusters Literature. A Bibliometric Exercise, Working Papers Universidade de Porto, Issue 164, December 2007. Available at: <http://wps.fep.up.pt/wps/wp257.pdf>. Accessed 20.07.2012; Z. Przygodzki., A. Nowakowska, J. Chądzyński, Region i jego rozwój w warunkach globalizacji, CeDeWu, WarsaW 2007 (chapter IV).

²⁹⁷ G. Becattini, The Marshallian..., op. cit., pp. 37-51.

²⁹⁸ A. Scott, New Industrial Spaces: Flexible Production Organisation and Regional Development in North America and Western Europe, Pion, London 1998.

²⁹⁹ C. Courlet, Les systemes productifs locaux: de la definition au modele, [in:] *Reseaux d'entreprises et territoires. Regards sur les systemes productifs locaux*, DATAR. La documentation Francaise, Paris 2001.

³⁰⁰ Ph. Aydalot, Trajectoires technologiques et milieux l'innovation, [in:] Ph. Aydalot (ed.), *Milieux innovateurs en Europe*, GREMI Paris 1986; R. Camagni, D. Maillat, *Milieux innovateurs. Theorie et politiques*, Oeconomica Anthropos, Paris 2006.

³⁰¹ H-J. Braczyk, Ph. Cooke, M. Heidenreich, *Regional Innovation Systems. The Role of Governance in a Globalised World*, UCL Press London 1998.

³⁰² B. Asheim *Industrial Districts as Learning Regions. A Condition for Prosperity?*, "Studies in Technology, Innovation and Economic Policy", University of Oslo, Oslo, 1995; R. Florida, *Toward the Learning Region*, "Futures", vol. 27 No. 5, 1995, pp. 527-536.

³⁰³ M. E. Porter, *Clusters and the New Economic Competition*, Harvard Business Review, November-December 1998, p. 78; M. E. Porter, *The Competitive Advantage of Nations*, The Free Press, New York 1990.

³⁰⁴ E. J. Feser *Old and New Theories of Industry Clusters*; [in:] M. Steiner (ed.), *Clusters and Regional Specialisation*, Pion Ltd, London 1998; A. Hamdouch, *Innovation Networks and Clusters: A Critical Review of the Recent Literature*, Proceedings of the 19th EAEPE Conference: Economic Growth, Development and Institutions, Porto 2007. Available at: (www.fep.up.pt/conferencias/eaep2007/Papers%20and%20abstracts_CD/Hamdouch.pdf). Accessed on 20.07.2012; R. Martin, P. Sunley, *Deconstructing Clusters: Chaotic Concept or Political Panacea?*, "Journal of Economic Geography", vol. 3(1), 2003, pp. 5-35.

we may distinguish some categories of works with clearly emerging “schools of thought”, which can be grouped around the notions of: an industrial district, a technopol (technological district), and local (territorial) production systems. In addition to these three basic categories, two more concepts deserve our attention: clusters and diffused entrepreneurship (Fr. *l’entreprisation diffuse*).³⁰⁵ The latter describes the situation of transforming post-communist countries, where the disintegrated vertical integration arrangements in their economies are replaced with a large number of small and medium-sized companies³⁰⁶.

II. TYPOLOGY OF LOCAL PRODUCTION SYSTEMS

There is a differentiation between an industrial district (ID) and a local production system (LPS). Becattini defines an industrial district as a “spatial concentration of small and medium-sized enterprises concentrated in industrial sectors and specialised in different phases of the production process, which contribute jointly to a specific production identified as the district’s industrial product.” He also noted that “an industrial district is a socio-spatial organisation characterised by the active co-existence of an open community (society) of individuals and the enterprise sector. The fundamentals of the district’s economy lie in external economies of agglomeration, which are strongly embedded in space and are characterised by strong irreversibility since they stem from the district’s historical and social structure.”

French researchers define LPS as “a system of enterprises grouped in close space around one of many industrial activities”, “a territorial union of economic, political, and social actors, whose efforts are focused on a specific group of interrelated activities”.

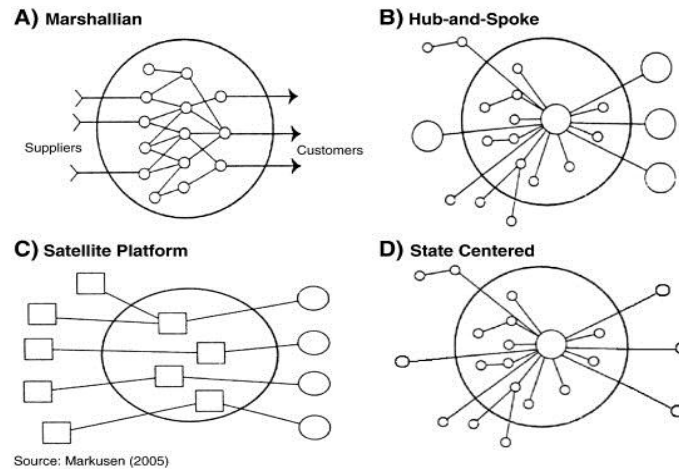
2.1. Types of LPS

One of the most famous typology is suggested by Markusen (1996). According to this typology there are four different types of industrial clusters: the first one is the Marshallian and Italianate type; the second is the hub-and-spoke; the third is known as satellite industrial platforms, and the last comprises the state-anchored clusters. (Fig. 2.1).

³⁰⁵ A. Jewtuchowicz, *Terytorium...*, op. cit., pp. 73-94.

³⁰⁶ C. Courlet, *Les systèmes...*, op. cit., p. 41; cited by: A. Jewtuchowicz, *Terytorium...*, op. cit., p. 75.

Figure 2.1. Types of LPS based on the Markusen concept



Markusen's descriptive typology specifies various criteria such as:

- (a) the configuration of the companies;
- (b) internal or external orientation, or the embeddedness of companies within their cluster and with agents outside the cluster;
- (c) governance structures;
- (d) the role of the state;
- (e) the role of large companies;
- (f) extent of cooperation and types of business relationships (Fig. 2.2.).

Figure 2.2. Markusen's typology of clusters

Cluster type	Characteristics of member firms	Intra-cluster interdependencies	Prospects for employment
Marshallian	Many small, innovative, medium-sized and locally-owned firms well embedded in the regional social dynamics.	Substantial inter-firm transfers, joint R&D efforts, pool of assets for fulfilling clients' orders, in a milieu munificent in institutional support.	Dependent on the dynamism of the cluster given external evolutions. Regional entrepreneurship.
Hub-and-spoke	One, or a few, large firm – possibly oriented to external markets - that is surrounded by many small suppliers and service provider firms.	Large firm(s) dictate the terms of the business relations with the smaller firms in the surroundings. Few interactions among spoke firms that are focused on their ties to the hub firm.	Dependent on the evolution and success of the large hub firm(s).
Satellite	Driven by branch-plants – possibly subsidiaries of large multinationals.	Low level of inter-firm contact and very limited inter-firm ties in the cluster.	Depends on the growth of the branch plants and the success of the public policies adopted to attract more firms.
State-anchored	A government owned or supported, usually not for profit, entity surrounded by related suppliers and service firms.	The anchor institution is central to the majority of the inter-firm ties but there may coexist significant exchanges among co-located firms.	Depends on the public policy and the relative ability of the anchor institution to attract additional political support and funding.

Source: Manuel Portugal Ferreira1, Fernando Ribeiro Serra, Benny Kramer Costa, Emerson A. Macca-ri4, Hergos Ritor Couto 5, *Impact of the Types of Clusters on the Innovation Output and the Appropriation of Rents from Innovation*, *Journal of Technology Management & Innovation* vol. 7 No. 4 Santiago dic. 2012, *J.Technol. Manag. Innov.* 2012, Volume 7, Issue 4

2.1.1 Clusters based on number of constituent companies

- Saturated clusters- there are a large number of companies in the cluster operating in different industries and regions (Cluster for health tourism – Bulgaria).
- Unsaturated clusters – there are a small number of companies in the cluster and the cluster's market share as a rule is not great (Inter Moda Trading Cluster).

2.1.2. Clusters based on type of internal integration

- Vertical clusters are characterised by the presence of a relationship between the participants in the value chain, which includes: suppliers, manufacturers, retailers and end customers (Inter Moda Trading Cluster).
- Horizontal clusters occur in industries in which competing companies cooperate. In this case, although there is a competition between the constituent companies, they unite and cooperate in a number of areas: logistics, innovation, marketing, etc., (cluster green freight transport).

2.1.3. Clusters based on level of internal integration

- Micro-clusters are characterised by integration at the level of the company. In this case, there is a group of companies that are located close to each other, allowing them to achieve the necessary level of coordination (Cluster "culinary arts and hospitality").
- Mezo-clusters – clusters are established on the basis of integration between close (related) industries, which means that integration takes place at the level of industry (Renewable Energy Cluster).

2.1.4. Clusters based on depth and breadth

- According to their depth, clusters are divided into deep, shallow, and clusters with an unspecified depth: 1) the deep clusters are distinguished by the presence of a large number of companies vertically integrated with each other (Bulgarian marine cluster); 2) shallow clusters are distinguished by a small number of vertically integrated companies and are related to pronounced horizontal integration (Inter Moda Trading Cluster); 3) clusters with an unspecified depth are determined by the inability to identify vertical linkages;
- According to their width, the clusters are: 1) broad clusters that include a relatively large number of companies/industries (Black Sea Bulgarian Cluster); 2) in terms of horizontal relationships narrow clusters consist of one or several industries/companies (Cluster electric cars).

2.1.5. Clusters based on scope of activity

- Clusters with a rich business activity: cluster members perform most, if not all of the activities in the industry, thus adding to the value chain and related industries (marine cluster Bulgaria);
- Clusters with limited activity – a narrower set of activities that are performed in the cluster’s borders (Cluster Metal Casting).

2.1.6. Clusters based on geographical determinants

- Geographical configuration: The ‘ideal type’ of cluster would be a single localised agglomeration of companies in the sector(s) comprising the cluster. Such single location clustering does occur, but in most cases a given sector is likely to have more than one cluster. Such multi-location clusters or ‘subclusters’ may be of roughly equal size and importance, or may form a type of ‘hub and spoke’ arrangement, in which one cluster dominates the others. There may also be links between sub-clusters, or between the ‘hub’ cluster and its various ‘spokes’;
- Geographical scale: Clusters can vary considerably in a spatial context. Some may be highly localised within a small geographical radius (Veterinary Practice Cluster; Smart Consult), while others may spatially be quite extensive and more diffuse, perhaps extending over quite a large regional area;
- According to their geographical significance there are clusters with regional significance (Construction cluster Montana), national significance (Cluster photo style, French Telecom and Television cluster) and international significance (Black Sea energy cluster). The basis for their classification into one of these groups is related to the geographical boundaries within which they conduct their business.

2.1.7. Clusters based on date of establishment and stage of development

- According to the industrial base that is at the heart of their creation: the first type of clusters are those that are formed as a result of (economic) development of the region within the borders of which they operate (Welcome cluster-Varna); the second type can occur as a result of the purposeful targeting of external investments to the region (Srednogorski Industrial copper cluster-Pirdop);
- From the point of view of the leading reason that justifies their creation, clusters can be established on the basis of: natural resources (Cluster Wellcome Varna); skilled labour (English e-cluster); key technology and

knowledge (Cluster electric cars); similarity of the markets; manufacturers of similar products (cluster in the field of PVC and its derivative products); educational and research institutions; the policy for the economic development of the region (State); random events.

2.1.8. Clusters based on level of development

Based on these aspects the following types of clusters can be seen:

- In the living clusters the companies possess the necessary level of local knowledge, specialised labour force and external economies and they are able to use these as a comparative edge in the marketplace. The members of these clusters are also internationally competitive. These clusters have a high research-development and innovation potential (Elektrocars Cluster);
- The emerging clusters have the critical mass of companies in a certain industrial area which is suitable to push some advantage of the clusters, although the interconnections and increation flow are not yet well developed. The emerging clusters can have their own infrastructure and R&D capacities, but they may not be enough to ensure the success of the cluster. The reason for that can stem from the lack of: knowledge in most of the local companies, interactions between the companies and other actors, common future vision and trust (Inter Moda Trading Cluster);
- Potential clusters possess the basic elements and factors to create a successful cluster, although it is necessary to deepen and strengthen them in order to feel the positive effects of cooperation. In the most cases the basic steps are missing, because the actors do not identify the possibilities for the creation of a cluster;
- We can also distinguish clusters governed by politics. In these cases the central or regional government picks a sector or industrial area to contribute to the cluster development processes through the existing critical mass or the existing knowledge;
- Dream clusters are mostly governed by politics. In these clusters the necessary critical mass and all other important elements which are crucial preconditions to the organic development of a clustere are missing. In the case of dream clusters the potential to develop a living cluster is very low.

2.1.9. Clusters based on sources of competitiveness

- the first group contains clusters, in which the source of competitive advantage is the value chain as a whole (a cluster of renewable energy sources);

- the second group contains clusters whose competitiveness is determined by a specific competence-key technology, know-how, experience, innovation and IP/other (Cluster electric cars, innovative and environmental technologies – green building).

2.1.10. Clusters based on capacity for innovation

This classification is related to the previous one, but in this case innovation is regarded as a major source of competitive advantage. On this basis we can identify clusters with a high innovation capacity (Cluster Ev) and clusters with low innovative capacity (culinary arts and hospitality cluster).

2.1.11. Clusters based on technological level

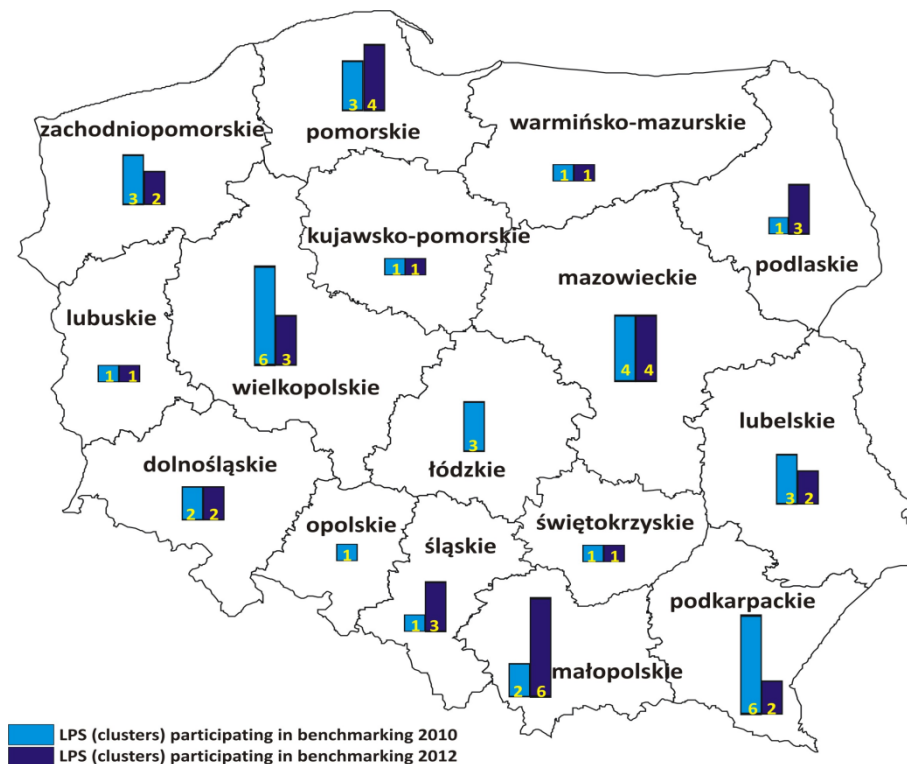
- Low-tech clusters – In general, benefits are the lower level of initial investment for new business initiatives, development, upgrading skills and flexibility of the workforce; specialisation of the participants; control over the value chain and others. These clusters need institutional support;
- High-tech clusters – the name indicates that the basis of these clusters are high technologies which enable the manufacturing of high-technology products. These clusters occur in high-technology parks and their establishment is carried out with the active involvement of the local or state authorities, usually as a result of purposeful conducted policies. State intervention is seen as a necessary but not sufficient condition (“Smart Cluster”);
- Virtual clusters – they are the last generation of clusters, which have arisen on the basis of the development of information technology and the Internet. The new technologies allow the connectivity of companies from different countries and let them carve out a functioning system. The establishment of such a cluster is suitable for areas and activities that are based on knowledge, in which geographical proximity is not relevant. Due to the nature of traditional industries, the creation of virtual clusters is possible to a significantly lesser degree (Bulgarian E-Cluster).

2.2. LPS in Poland – main characteristics

Undoubtedly, local production systems are nowadays one of the most important constituent elements of the improved competitiveness and innovation of the Polish economy. For reasons pertaining to their organisation (partnership and collaboration of many circles), they provide a joint platform to the formerly isolated worlds of universities/science, public sector, and the economy.

Clusters are one of the most popular forms of territorial production organisation, often identified in the literature with local production systems. Probably due to M. E. Porters’s popular definition of clusters, they have become synonyms of any territorial form of production organisation. We can see this, firstly, in policies designed to support geographical groupings of companies and entities, which collaborate with one another. The notion is largely used by the EU institutions and their units responsible for industrial and innovation policy and for supporting SMEs³⁰⁷ and the policy is referred to as the cluster policy.³⁰⁸

Figure 2.3. Number of active local production systems and new cluster initiatives included in benchmarking in Poland in the period 2009-2012



Source: own calculations based on data from two cluster benchmarking studies in Poland.

³⁰⁷ French and partly Italian academics are important exceptions to the rule. Although recently they approved the English term “cluster”, they always stress that the phenomenon itself has been identified and analysed much earlier in France and Italy.

³⁰⁸ For the purpose of the FOLPSEC project, clusters are defined as a way of reflecting all principal characteristics of local production systems. Hence the term “cluster” used in this chapter should be interpreted with the reservation that the authors identify it with the LPS.

In the view of the above, studies devoted to clusters, their typology and characteristics multiplied in the Polish policy supporting the clusters and in analytical and research activities. Benchmarking is the most frequently used method to survey clusters, both in Poland and in Europe. "Research entitled *Cluster Benchmarking in Poland*"³⁰⁹ was conducted twice in Poland, in 2010 and in 2012, providing a good overview of the development and operations of local production systems.³¹⁰ Characteristics and typology of local production systems in Poland presented in the surveys are based mainly on the above mentioned analysis³¹¹ and on authors' expertise as researchers involved in many projects and studies on clusters in Poland.³¹²

³⁰⁹ The survey was initiated by the Polish Agency for Enterprise Development, the Polish central government agency dealing with programmes focused on economic development, support for innovation and research in SMEs, regional development, fostering exports, human resources development and the use of new technologies. (Benchmarking Reports: Deloitte, *Cluster Benchmarking in Poland – 2010*. Survey report, Polish Agency for Enterprise Development, Warsaw 2010. Available at: <http://www.parp.gov.pl/files/74/81/380/9762.pdf>. Accessed 04.08.2012; Holub-Iwan, J.(ed.), *Cluster Benchmarking in Poland – 2012*. General report, Polish Agency for Enterprise Development, Warsaw 2010. Available at: http://www.pi.gov.pl/PARPFiles/file/POLISH_INNOVATION_PORTAL/Clusters/Raport_eng.pdf. Accessed on 04.08.2012).

³¹⁰ Making reference to the survey is justified by at least three reasons. Firstly, the sample, although non-representative from the point of view of statistics theory, includes clusters active in Poland that are performing quite well and, importantly, with a good understanding of the objectives of operating within local production systems. Secondly, the survey was already conducted twice, i.e., it is becoming cyclical, which allows us to draw conclusions in a long-term perspective. And thirdly, the authors were a part of the team of experts that developed research methodology and thus feel authorised to disseminate the results of the analysis and, on the other hand, they accept full responsibility for the nature and results of the survey.

³¹¹ Benchmarking methodology applied to clusters in Poland analyses internal and external determinants of cluster operations and is based on the list of several dozen detailed indicators grouped in key areas. Importantly, benchmarking methodology is based on a complex combination of qualitative and quantitative methods of gathering information and data by two independent experts for each analysed issue, i.e., the so called methodological triangulation (see Denzin N. K., 2009, *The Research Act: A Theoretical Introduction to Sociological Methods*. Aldine Transaction, Chicago, p. 301). Hence, benchmarking of local production systems, both in 2010 and in 2012, covered four areas: 1. cluster resources, 2. in-cluster processes, 3. cluster performance, and 4. growth potential. In addition, the survey conducted in 2010 included the strategic orientation of local production systems in Poland. In each analysed area results achieved by local production systems covered by the survey, served as the basis for calculating a model, the best performing hypothetical cluster. The model (benchmark) was then compared with average results for all entities, which allowed us to compare analysed LPSs with both the "best" and the "average" entities becoming a reference point for more detailed analyses.

³¹² Major publications and research projects: *Mapping Clusters in Poland 2008* (A. Nowakowska, Z. Przygodzki, M. E. Sokołowicz), Polish Agency for Enterprise Development, Warsaw 2008; *NGPExcellence Cluster Excellence in the Nordic Countries, Germany and Poland* (M. E. Sokołowicz - interviewer-expert), 2010-2011, Danish Ministry of Science; Nowakowska A., Przygodzki Z., Sokołowicz M., *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

Because of the nature of the arrangement, identification of local production systems is a major research challenge. Qualitative 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.³¹³ The above difficulties lead to divergences and allow only an estimate of the population of local production systems. Based on studies and accumulated knowledge so far 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 of the so-called cluster initiatives, i.e., projects at very early stages, with respect to which we cannot unequivocally anticipate their future shape (see Fig. 2.3.).³¹⁴

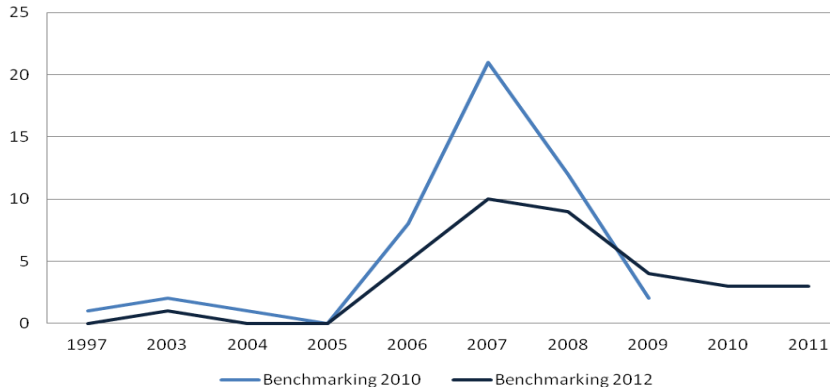
Local production systems can be identified in each region (voivodeship) in Poland with relatively minor **spatial differentiation**. Nevertheless, we can observe that the relatively largest population of local production systems is based in well developed regions (Wielkopolska, Lower Silesia, Pomerania) and in the 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.

Sciences Committee for Spatial, Economy and Regional Planning, Warsaw 2009, pp. 265-280; Nowakowska A., Przygodzki Z., Klastry, [in:] Ośrodki innowacji i przedsiębiorczości w Polsce. Raport 2010, ed. K. B. Matusiak, PARP, Warsaw 2010, pp. 167-176; 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, ss. 61-81; Nowakowska A., Przygodzki Z., Sokołowicz M., Benchmarking of clusters In Poland. The concept, methodology, application aspects and results, Management & Gouvernance. Entreprises – territoires – societies, Cahiers Internationaux du Réseau PGV nr 7/2012, pp. 63-78; Sokołowicz M. E., Cluster policy in Europe as a tool of supporting „cooperating entrepreneurs”, [in:] Martin. C. Rkibi, T. (eds.), L'Entrepreneur face aux politiques Publiques Européennes, Travaux Scientifiques du Réseau PGV, PGV / ISLA Campus Lisboa, Lisboa 2012, pp. 242-259; Sokołowicz, M. E., Strengthening Cluster Policy Cooperation in Europe: looking ahead to a new policy agenda. Conference report. Available at: http://www.pi.gov.pl/PARPFiles/file/POLISH_INNOVATION_PORTAL/Tresci_stale/Polish_Presidency_Conference_Report.pdf. Accessed 16.08.2013; A. Nowakowska, BIOS – Budowa Skutecznego Otoczenia Innowacyjnego Biznesu – project commissioned by the Polish Agency for Enterprise Development (2010-2011).

³¹³ For more advantages and disadvantages of quantitative and qualitative methods of identifying clusters and the complexity of LPS identification methodologies see: Nowakowska, A., Przygodzki, Z. Sokołowicz, M. E., Mapping Clusters in Poland. A Comprehensive Methodological Approach, [in:] Markowski, T., Turała, 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.

³¹⁴ Nowakowska, A., Przygodzki, Z. Sokołowicz, M. E., Mapping Clusters..., op. cit.

Figure 2.4. Dynamics of the established local production systems in Poland



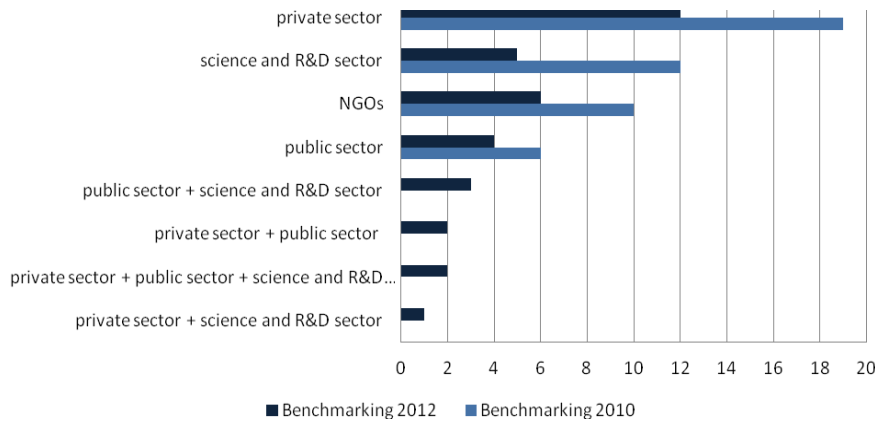
Source: Own composition, based on: Deloitte, *Cluster Benchmarking in Poland – 2010. Survey report*, Polish Agency for Enterprise Development, Warsaw 2010. Available at: <http://www.parp.gov.pl/files/74/81/380/9762.pdf>. Accessed on 04.08.2012; Hohub-Iwan, J.(ed.), *Cluster Benchmarking in Poland – 2012. General report*, Polish Agency for Enterprise Development, Warsaw 2010. Available at: http://www.pi.gov.pl/PARPFiles/file/POLISH_INNOVATION_PORTAL/Clusters/Raport_eng.pdf. Accessed 04.08.2012

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

The dynamic development is certainly the outcome of active regional and central government policies, as well as of many programmes open for such initiatives and originating to a large extent, from the EU funds for enterprise development. Consistently, a vast majority of the LPS are at initial stages of their development. Only several clusters can be considered mature, with a relatively stable network of collabourators and external links producing measurable market effects.

In Poland, local production systems were mainly **initiated by private sector operators**, who created clusters on their own or took part in their development. This is the path followed by ca. 40% of LPS.

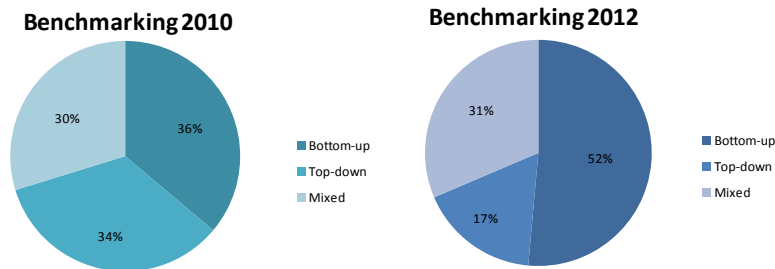
Figure 2.5. Initiators of local production systems in Poland



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

The R&D centres and the public sector were also active in initiating clusters. One could observe the tendency for clusters establishment (as common ventures) by universities, businesses and the public sector.

Figure 2.6. How local production systems are created in Poland



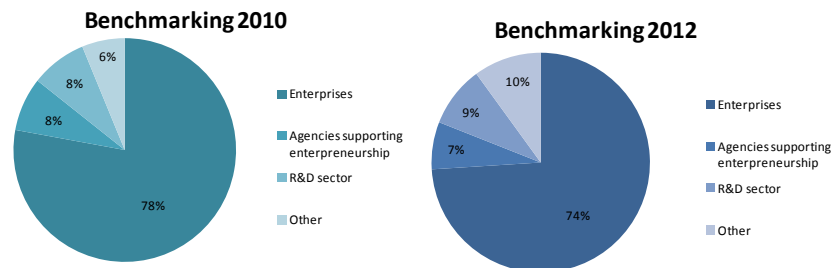
Source: Own composition, based on: Deloitte, *Cluster Benchmarking in Poland – 2010...*, op. cit.; Holub-Iwan, J.(ed.), *Cluster Benchmarking in Poland – 2012...*, op. cit.

Local production systems develop either as bottom-up initiatives resulting from the needs of the 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, accompanying entrepreneurs' enhanced interest in this type of collaboration.

The clusters included in the survey 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 centres (8-9%) and other units of

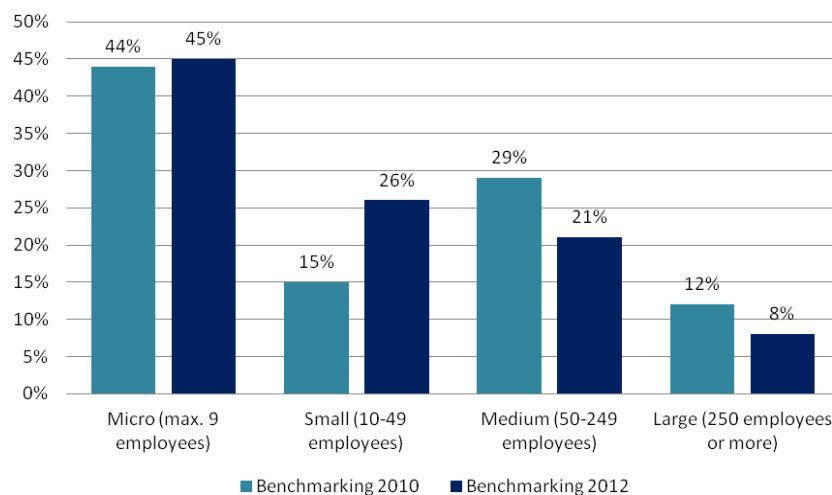
local government or private individuals. In most cases, local production systems include enterprises, business environment organisations and R&D centres.

Figure 2.7. Participants of local production systems in Poland



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

Figure 2.8. Enterprises by the size of employment in local production systems in Poland



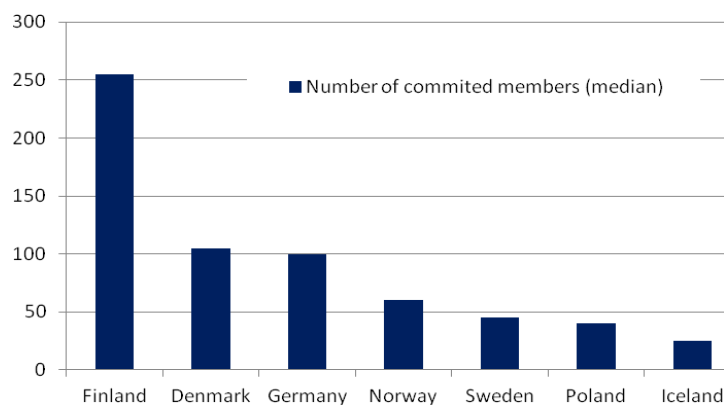
Source: Own composition, based on: Deloitte, *Cluster Benchmarking in Poland – 2010...*, op. cit.; Holub-Iwan, J.(ed.), *Cluster Benchmarking in Poland – 2012...*, op. cit.

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

The above figure is accompanied by the results of another comparative survey, which analysed local production systems operating in Denmark, Finland, Iceland,

Germany, Norway, Poland, and Sweden.³¹⁵ In accordance with the results of this benchmarking exercise, in 2010 the average size of a cluster in Poland did not go beyond 50 participants, while in Germany and Denmark there were on average 100 participating entities and in Finland ca. 250. However, in the opinion of the Authors of the survey, the size of Polish local production systems is comparable to similar arrangements operating in Sweden or Norway (see Fig. 2.9.).

Figure 2.9. Comparison of the size of local production systems in selected European countries



Source: Own composition, based on: Lämmer-Gamp, Th., Meier zu Köcker, G., Christensen, T. A., *Clusters Are Individuals. Creating Economic Growth through Cluster Policies for Cluster Management Excellence*, VDI/VDE Innovation + Technik GmbH, Berlin 2011, p. 19. Available at: http://fivu.dk/en/publications/2011/files-2011/clusters_indhold_web_v2.pdf. Accessed on 05.08.2013.

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. The analysis of dominating sectors in Polish clusters indicates that LPS from both traditional and innovative sectors appear here. Among LPS functioning in the country, many operate in technology and knowledge-intensive branches, such as: IT, the aviation industry, medical sciences, biotechnology, energy, automotive industry and printing or marketing related services. However, the other group of clusters has emerged in low-technology sectors such as: food processing, construction, hotels, catering and tourism.³¹⁶ This dichotomy may be a consequence of the “urban/non-urban areas” division. The clusters, whose core is located in bigger cities, operate in

³¹⁵ Lämmer-Gamp, Th., Meier zu Köcker, G., Christensen, T. A., *Clusters Are Individuals. Creating Economic Growth through Cluster Policies for Cluster Management Excellence*, VDI/VDE Innovation + Technik GmbH, Berlin 2011. Available at: http://fivu.dk/en/publications/2011/files-2011/clusters_indhold_web_v2.pdf. Accessed on 05.08.2013.

³¹⁶ Nowakowska, A., Przygodzki, Z., Sokołowicz, M. E., *Mapping Clusters...*, op. cit., pp. 265-280.

more innovative sectors while in weakly urbanised or rural areas – traditional clusters prevail.

However, it is difficult to define the level of innovativeness, using only statistical data and services classification.³¹⁷ It must be stated that in some cases, clusters whose core derives from low-technology branches, have also declared an involvement in research and development of new technologies.

The activity of Polish clusters, as perceived by 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 the regional specificity, economic history of the region or its industrial focus in the past. The Lodz Region can be used as an example. In that region one cluster was identified in textile and clothing industry, typical for the capital city of the region. Another cluster is related to the film industry tradition of Lodz. In this 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 the aviation industry developed on the basis of the long-lasting tradition of the region; in the Warmia-Mazurian region clusters exploit the 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 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, which are well established in the region. The IT industry is 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 traditions and the past of their respective regions, and their growth is very much determined by the economic situation of the immediate neighbourhood. As shown by the studies, 85% of the clusters considered regional conditions, potential and traditions important or fundamental for their growth.³¹⁸

2.2.1. Strengths and directions of changes in the LPS competitive potential in Poland

Concerning the competitive potential of LPS in Poland, **resources** are the main area of benchmarking analyses. In the light of the survey of 2010, the area was

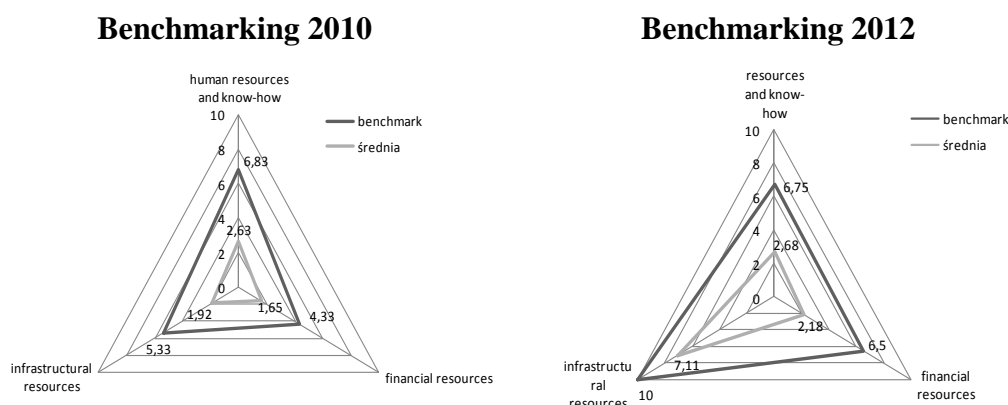
³¹⁷ Like OECD’s High Technology Sector and Products Classification or Knowledge Intensive Services (KIS) used by Eurostat.

³¹⁸ Nowakowska, A., Regionalny wymiar procesów innowacji, Publishing House of the University of Lodz, Lodz 2011, p. 157.

categorised as problematic due to low average scores of all sub-areas³¹⁹: human resources and “*know-how*” in the cluster, infrastructural and financial resources. At that time only very few clusters revealed a strong potential of internal resources. The survey conducted two years later indicated positive changes in all sub-areas.

The biggest changes took place in the sub-area of “**infrastructural resources**”, where in 2010 the model (benchmark) value was the lowest and the average value was low in any case. At that time, the value was indicative of the initial stage of development of clusters in Poland. Collaboration with R&D units, which usually offer their laboratory space to clusters has been organised, but only a few operators could benefit from it. The upward trend in the assessment of the infrastructural resources should be, first of all, attributed to the improved availability of offices, conference rooms and laboratories for cluster operators and the wider use of ICT in the internal communication of the LPS.

Figure 2.10. Average and benchmark values for “cluster resources” in 2010 and in 2012 in Poland



Source: Deloitte, *Cluster Benchmarking in Poland – 2010...*, op. cit, p. 47; J. Hołub-Iwan, J.(ed.), *Cluster Benchmarking in Poland – 2012....*, op. cit, p. 74.

In 2010 businesses and other participants in the LPS assessed the potential of their own **human resources and knowledge** relatively highly. Unfortunately, these resources were not exploited enough and did not translate into enhanced competitiveness and improved cluster performance. In the context of the results of 2012, scores in this category changed, the least remaining a significant challenge. This

³¹⁹ For general conclusions from the surveys, the Authors deliberately used average values instead of evaluating a particular cluster to demonstrate the trend and general developments in clustering in Poland and for reasons pertaining to the protection of market secrecy of entities operating in analysed LPS.

element directly impacts the innovative potential of Polish LPS compared to LPS innovativeness in other countries.³²⁰ Big and mature clusters actively coordinated by the leaders, particularly when it comes to building relationships between businesses and R&D units, are evaluated with the highest scores, independently of the industry in which they operate.

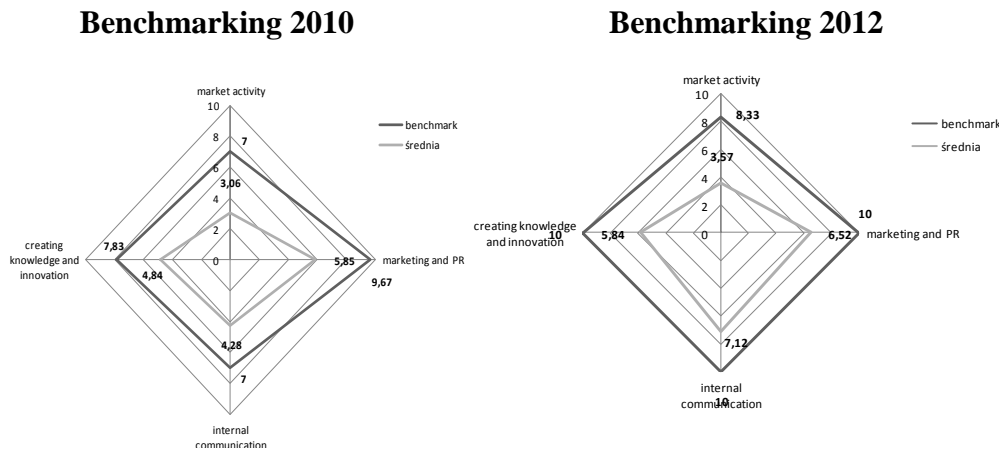
Similar situation and trends are observed for the sub-area “**financial resources**”. In both 2010 and 2012 the distance between the average value and the benchmark was significant and the recorded progress was minor. Representatives of the included in the survey LPS, when identifying the barriers to their development, most usually mentioned the need of financial support from public authorities. The majority of the difficulties and the limited operational scale were explained by the lack of both sufficient financial resources and possibility to finance joint projects and ideas. A survey conducted in 2012 shows that small and young clusters mainly use their own resources, while big and mature ones much more frequently and to a larger extent seek external sources of funding. This is mainly true for units coordinated by a skilful network broker.

Another area of benchmark analysis deals with the **processes** identified within LPS. The operational activity of clusters was assessed in the following sub-areas: market activities, marketing and PR, internal communication and the creation of knowledge and innovation. The indicator-based assessment of the area significantly improved over the recent two years. The average score given to the analysed clusters increased by 36%.

In 2010, the score was moderate and its relatively high level was due to activities in marketing and *public relations*, characteristic for the initial stages, charged with little risk and not requiring considerable financial investment. Moreover, despite the fact that the creation of knowledge and innovation is a proper task for an LPS in the more mature stages, the score was relatively high. That can be explained by the undertaking of joint initiatives in training, study visits, participation in conferences or their organisation and the exchange of experience among members of the cluster in question. These activities are usually not strictly related to the transfer of product or technological innovation.

³²⁰ Z. Przygodzki, 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, p. 75

Figure 2.11. Average values and benchmark values for the category “cluster processes” in 2010 and in 2012 in Poland



Source: Deloitte, *Cluster Benchmarking in Poland – 2010...*, op. cit, p. 75; J. Holub-Iwan, J.(ed.), *Cluster Benchmarking in Poland – 2012...*, op. cit, p. 46.

Comparing the picture of local production systems generated in 2010 with the results obtained in 2012, we should stress that the biggest change was recorded in **communication in clusters**. The average score in this sub-area increased by 66%. In 2012 average scores for all of the LPS in categories such as: differentiated communication tools, meetings of participating entities, efficiency and effectiveness of exchange of knowledge and increation or diffusion of silent knowledge were relatively close to the models. In particular internal communication in clusters in the last two years was strengthened by building and developing various platforms for internal communication. These platforms often offer many convenient and necessary tools that facilitate not only the communication among network participants, but also the managing of joint projects or e-learning tools. External communication, exchange of knowledge and increation among clusters, gained in importance. The best examples are initiatives undertaken by clusters in 2012, such as:

- “*Discussion subjects for cluster managers PL*” (klastering@lists.man.poznan.pl) - a discussion platform, place for the exchange of knowledge, increation, discussion, opinions on cluster operations or their present individual needs and problems;
- “*Polish Clusters Employers’ Association*” (www.klastrypolskie.pl) – an important platform for clusters’ cooperation with their environment. The platform joins coordinators of economic clusters, cooperation links and cluster initiatives in Poland. The organisation is formally registered as an employers’ association.

Positive changes, although much more limited, were also observed in **marketing and PR**. Progress occurred mainly in implementing and using communication and promotion tools. We may speak of professionalization of management. Clusters improved their systems of visual identification. In 2012 every third cluster in Poland had a professional logo book while in 2010 a logo book was available for less than 5% of local production systems. Clusters' participation in fairs and exhibitions also improved on average and their joint promotional activities intensified (leaflets, brochures and advertising in the media) .

In the assessment of processes within LPS in 2010 **market activity** scored the lowest. Usually the reason was low or zero awareness of the possibilities and conditions for implementing projects in this area and the relatively low internal communication intensity in 2010. Uncertainty and the lack of trust made the participants of clusters rarely use joint channels of supplies of goods and raw materials. The lack of ability to communicate internally, an important condition for getting know your business partner often leading to enhanced trust and minimisation of transaction costs, rarely produced positive development processes.³²¹ In the initial stage of the development of local production systems, that condition is one of the principal objectives of their operations. In 2012 market activity of clusters slightly increased but it still calls for improvement as the distance between the average and the model value continues to be significant. First of all, LPS got much more involved in organising joint distribution channels for their participants and took much more care for developing joint offers addressed to external clients.

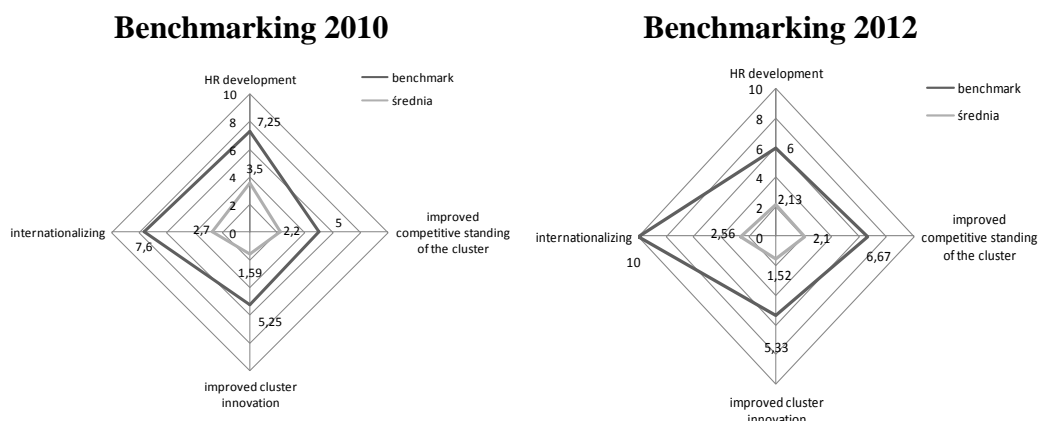
The final element assessed in clusters was the sub-area of **creating knowledge and innovation**. The situation slightly improved. Positive tendencies are reflected mainly in joint works on innovative products and technologies. Little progress was recorded in organisation and marketing innovations. Processes linked to staff education (joint training courses, workshops, conferences, study visits), both in 2010 and in 2012, were assessed as relatively high as they represent the primary area of pro-innovative activities in clusters.

Performance is the next element of the benchmark analysis. Assessment in this area lets us draw conclusions about the efficiency of LPS in Poland. Here, unfortunately, the evaluation is clearly and uniformly negative. In none of the assessed

³²¹ Transaction costs result from the fact that, in addition to the market price paid to finalise the transactions, an economic entity should also consider other costs associated with the searching for contractors, negotiating prices, costs associated with the risk of unreliability of contractors, transaction fees, insurance, etc (A. Nowakowska, Z. Przygodzki, M. E. Sokółowicz., *Region w gospodarce opartej na wiedzy, Kapitał ludzki-innowacje-korporacje transnarodowe*, Difin, Warsaw 2011, p. 142). Thus, effective internal communication within clusters works as an alternative for both the market (avoiding high market transaction costs) and the hierarchical organisation (avoiding high "internal" transaction costs).

sub-areas (human resource development, competitive position, improved innovativeness or internationalisation) clusters made any progress. In the survey of 2010 most clusters were at their outset. However, despite the improved organisation of the network and the advancement to mature development, the results of 2012 did not improve and even slightly dropped in all sub-areas. In addition, average values were very low. In two sub-areas (cluster internationalisation and competitive position) model values significantly increased meaning the best clusters improved their performance. On the other hand, in terms of benchmarking, distances between the average and the model expanded, which shows that the clusters reflecting relative stabilisation (stagnation), increased the distance to the leaders.

Figure 2.12. Average values and benchmarks for “cluster performance” in 2010 and in 2012 in Poland



Source: Deloitte, *Cluster Benchmarking in Poland – 2010...*, op. cit., p. 119; J. Holub-Iwan, J.(ed.), *Cluster Benchmarking in Poland – 2012...*, op. cit., p. 102.

We should also note that, in both 2010 and 2012 particularly low benchmark and average value were identified in the sub-area **improved cluster innovativeness** and **competitive position**. The score is even lower when we take into account that quite a large percentage of LPS already achieved relatively high levels of organisational maturity. The low assessment of the ability to improve the competitive position is mainly the result of limited capacity to generate *spin-offs* and *start-ups* together with little engagement in investment and R&D. There were also some positive, however minor, changes. Scores for the models and average values in both editions of the benchmarking exercise were relatively low.

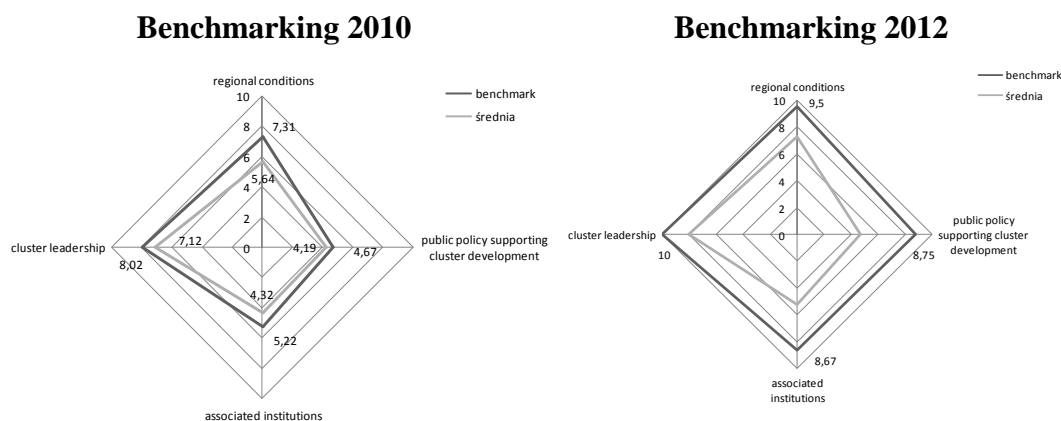
Internationalisation of clusters in 2010 most frequently took the simplest form of exports. The scale of export activity measured against the share of exports in sales of cluster’s products remained small until 2012. We must note, however, that the share of clusters which pursued export activities increased from 85% in

2010 to 89% in 2012. The most unfavourable tendencies were observed in the sub-area **human resource development**, where the average values of the model and the average in the studied population of clusters diminished in both years. The result was largely influenced by reduced investments in human resources. On a positive note, it is worth highlighting that despite the unfavourable conditions in the context of the global economic crisis, 70% of the recorded LPS increased employment in core entities of clusters.

The fourth area analysed in the course of benchmarking was the **growth potential**. In this area four sub-areas were distinguished: regional predispositions, public policy favouring the development of clusters, institutional surroundings, and leadership in the cluster. Comparing the results of 2010 and 2012 we may conclude that there is a positive tendency as model and average values increased for all sub-areas.

Values connected with **leadership in clusters** scored particularly high. The score was the combination of the following elements: coordinator's strength and position in a cluster, coordinator's ability to initiate cooperation and LPS active external involvement. According to respondents, in 2010 cluster facilitators had the largest impact on the shape and development of the cooperation network.

Figure 2.13. Average values and benchmark values for the area "growth potential" in 2010 and in 2012 in Poland



Source: Deloitte, *Cluster Benchmarking in Poland – 2010...*, op. cit, p. 150; J. Holub-Iwan, J.(ed.), *Cluster Benchmarking in Poland – 2012...*, op. cit, p. 134.

However, in 2012 their strength and position scored lower than in the first edition of the survey. Respondents claimed it was due to very few projects which they implemented jointly and to coordinators little renown in professional circles. Values for the other categories increased. A particularly high increase was recorded in average values for LPS activities *vis-a-vis* external surroundings.

In the opinion of the respondents **the surroundings of the clusters** (regional and institutional), are also important for fostering the competitive capacities of local production systems. The regional environment positively influences competitive capacities. Average scores increased, although to a limited extent, over the two monitored years. An increase was observed for the scores of the potential, natural resources, business traditions of the local community, availability of human capital, regional investment activities, and the openness of local community to cooperation. The more favourable assessment of the institutional activities in 2012 compared to 2010 was mostly determined by the positive opinion concerning the openness and quality of the R&D sector in the region and, to a smaller extent, by the easier access to financial resources allocated to the clusters. The score given to the adequacy of training, advisory and IT services compared to the needs of LPS slightly deteriorated.

The lowest scores among the sub-areas of the growth potential, both in 2010 and in 2012 were recorded for the **policy pursued by public authorities** with a view to clusters' development. In this sub-area the distance between the model and the average value is also the longest. The increase in the average score compared to 2010 is relatively minor. To a large extent this results from the fact that in Poland pro-cluster policy at regional level is a new area for the public authorities. Only some regions carried out actions to foster the competitive potential of LPS.

2.2.2. Innovation in Polish LPS

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 2012³²² and only 20% in 2010. These results accompany the increasing market maturity of LPS in Poland, and are especially favourable for the group of mature clusters (at 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 the clusters operating in Poland are active in industries categorised by the OECD as high or medium-innovative.³²³ In most cases their core industries include: IT, aviation, telecommunications, environmentally-friendly power generation or medicine. The structure of clusters by industries shows the big innovation potential of their members.

³²² Hołub-Iwan, J.(ed.), Cluster Benchmarking in Poland – 2012...., op. cit, p. 66.

³²³ It is hard to unequivocally conclude the level of innovation using only industry-specific classification as there are clusters that conduct research in new technologies and new products while operating in low-innovative industries (e.g., food processing or construction).

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 together with innovations' implementation or technology transfer are important but still remain secondary for the clusters.

For LPS we can observe a strong involvement in areas that directly contribute to innovation and to the development of resources of formal and informal knowledge. In 2010, 80% of clusters in Poland declared that the key benefit of being in the structure for them consists of the access to tacit knowledge that facilitates establishing business relations and provides access to unofficial information, which shortens time and reduces the cost of executing market transactions. In 2012, almost 90% of clusters declared they would undertake steps in this area.³²⁴ It is a positive sign that 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. For less than 75% of LPS, creating cognitive proximity and building common pools of knowledge resources are the major areas of activity.

Although pro-innovation activities of Polish clusters are still underdeveloped, within the last two years we can observe high dynamics of positive changes in this area. For example in 2010 only 10% of the clusters in Poland owned legally protected innovative solutions while in 2012 more than 40% of the clusters declared such innovations. In total, LPS in Poland declared 752 innovations protected with IPR in 2012.³²⁵

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

The trend is also accompanied by the share of R&D expenditure in total spending on innovation in the core of the cluster. In six cases R&D expenditure share

³²⁴ Hołub-Iwan, J.(ed.), Cluster Benchmarking in Poland – 2012....., op. cit, p. 64.

³²⁵ Hołub-Iwan, J.(ed.), Cluster Benchmarking in Poland – 2012....., op. cit, p. 122

exceeded 25% in the past two years.³²⁶ On the other hand, almost half of the clusters do not allocate their own resources to R&D.

The main areas of direct innovative activities in clusters are the joint development of innovative products and technologies, which for almost 30% of LPS are the primary activities. Compared with the survey of 2010, this activity area improved the most (the highest increase in benchmark value). Interestingly, clusters focus less on marketing and organisational innovations, mainly because of the diversity of the entities in the cluster are the difficulties of the implementation.

Compared to 2010, employment in R&D in the cluster core diminished slightly. The drop is symbolic and connected mostly with the verification of market competences of the research staff. Performance of Polish clusters is not very satisfactory when it comes to establishing innovative companies. In 2012 *start-up* and *spin-off* companies operated in only five clusters.³²⁷

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

The structure of clusters is dominated by enterprises and various supporting organisations (Chambers of Commerce and Industry, development agencies, local and regional authorities). R&D units represent ca. 10% of the entities in the cluster and the percentage has not changed recently. Units from the research industry rarely play a leading role in clusters. Only in some cases they are the leading partners and animators of the cluster’s activities.

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

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

³²⁶ Hołub-Iwan, J.(ed.), Cluster Benchmarking in Poland – 2012....., op. cit, p. 166.

³²⁷ Hołub-Iwan, J.(ed.), Cluster Benchmarking in Poland – 2012....., op. cit, p. 167.

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

Concluding remarks

In Poland clusters are a relatively young economic phenomenon. Although their position and economic performance will gradually improve, they still seem poor and need significant support. Analysis of the development of LPS in Poland has revealed their strengths and weaknesses. One of the major strengths is the involvement in developing internal communication, which enables the build-up and exchange of tacit knowledge and experience among cluster members. Various forms of creating joint competence and knowledge (through the organisation of joint training courses, workshops, sectoral conferences) rank high on the list of cluster activities in Poland. In most analysed cases one of the key success factors in clusters is the strong position of LPS leaders, the so called *cluster facilitators* and their active involvement in the building of a sustainable competitive position. Participation of cluster members in creating innovation and technology transfer also gains in importance. Polish clusters are especially successful in joint marketing activities (brochures, marketing campaigns, fairs and exhibitions, common logo books). Recent years also witnessed significant improvement in the internationalisation of clusters. Almost half of them operate on at least 10 foreign markets and only a few clusters in Poland operate exclusively regionally or domestically.

In recent years the catalogue of various tools used to support the development of clusters significantly expanded (cluster policy) and they are available at local, regional and national levels. These support instruments were financed mainly under the EU cohesion policy in the period 2007-2013. Public intervention measures were used particularly efficiently by animators and members of Polish LPS for the development of knowledge and competence (human resource development). Similar conclusion can be drawn for the use of financial resources for the development of infrastructure in clusters, as in the last two years the availability of laboratories, offices, conference rooms, and other in-cluster infrastructure significantly improved.

It should be stressed that the majority of active LPS in Poland are differentiated in regional terms, which makes it impossible to present their uniform and transparent typology. In some parts of the country, LPS operate similarly to classical Marshallian industrial districts or Italian industrial districts (e.g. small LPS in Eastern Poland dominated by microenterprises), but there are technology-driven clusters,

where a leading R&D unit is a broker and facilitator (e.g., in Wielkopolska and in its capital city Poznan) or hub-and-spoke clusters dominated by big multinational corporations (e.g., the world famous aviation cluster in the region of Subcarpathia). That should be considered as a positive and promising development in the context of building smart specialisation of Polish regions. Clusters in Poland are relatively strongly linked with the potential, raw materials, and traditions of the local community, in which they are embedded. The only exception to the rule is the IT industry, which develops dynamically in all Polish regions.

Among the weaknesses (or rather future development challenges) of Polish local production systems we should primarily list their still low innovativeness. Major barriers to the development of LPS in Poland include:

- low propensity of the entrepreneurs to cooperate and lack of trust between business partners (low level of social capital);
- 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 the intensification of 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 of the operational mechanisms and changes in their organisational culture and routines.

The above factors clearly indicate that the priority in LPS support in the near future should be to stimulate cooperation and to initiate steps for confidence building between entrepreneurs and other operators in existing and emerging clusters.

Finally, an important challenge, often considered a priority by entities responsible for the development of entrepreneurship in Poland, is to enhance LPS internationalisation. The objective, similarly to fostering innovation in clusters, will be the key (and justified) direction in support of LPS in Poland in the financial perspective 2014-2020.

2.3. LPS in Slovakia

2.3.1. Automotive clusters in Slovakia

The development of the automotive industry in Slovakia and its integration into the important global automotive centres began in the early 1990s when the German company Volkswagen AG decided to start car production there. The creation of a supply chain started with the arrival of Volkswagen, and thus further investments into the automotive industry supported the supply sector. Slovakia had started a new path of development of industrial production, above all in the sectors of automotive and engineering. The implementation of the second important wave of investments in the automotive industry took place in the period 2003-2005 thanks to the arrival of two other world-known automotive companies: PSA Peugeot Citroen and KIA Motors.

For the automotive cluster are needed³²⁸ concentrated groups of independent, regional associated companies and related institutions with the potential to increase their competitiveness.

Their characteristic threats are:

- competition and cooperation;
- knowledge or traditional focus;
- geographical concentration with potential global impact;
- specialisation, common technologies, skills and products;
- cooperation with universities and colleges;
- cooperation with financial institutions;
- cooperation with centres of technology transfer;
- international networking.

Participating companies compete, but also deal with similar issues (staff training, access to the same supplier, collaboration with research and development capacities, etc.) and share common resources. Thanks to cooperation in these areas they can overcome their limitations and gain a competitive advantage.

Membership in the Automotive cluster brings:

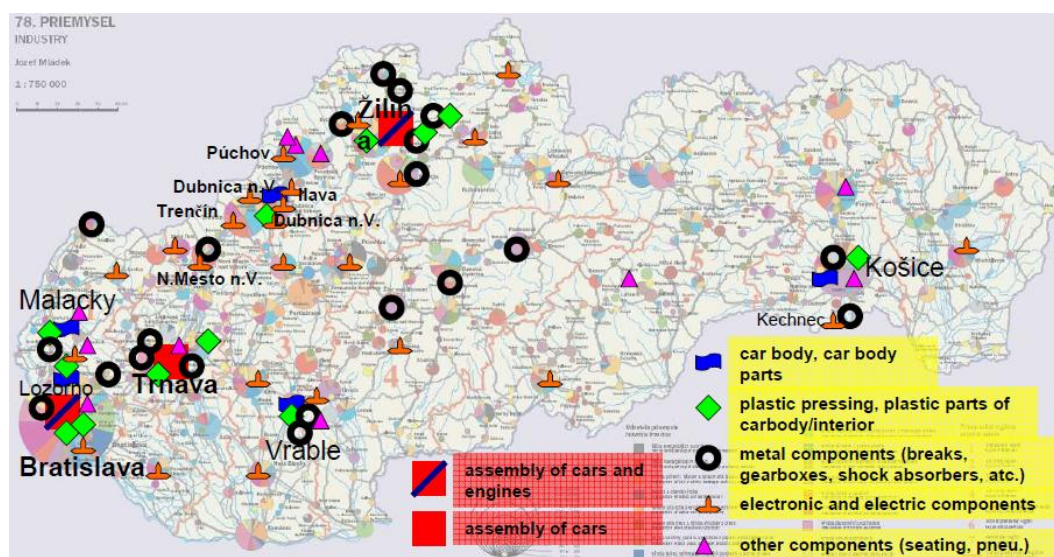
- improvement of economic results by collective expenses;
- progressive increase of innovation and technological capacities;
- promotion of the members at international events;
- better access to new markets and an increase in export activities;
- EU funded projects consultancy;
- added value for investment attractiveness;

³²⁸ Online: <http://en.autoklaster.sk/index.php>

- research and innovation technologies boost;
- human resources quality increase;
- company specialisation improvement.

According to the Slovak Ministry of Economy, the automotive production in the Slovak Republic is concentrated in three regional clusters (see Fig. 2.14. with suppliers). The first and strongest cluster is in the western part of the country, where both the VW and the PSA factories are located. The second regional cluster is in the northern and central part of the country, and is related to the Kia Motors' plant. The third cluster is in east part of the country, with the Kechnec industrial park in Košice housing several key suppliers, including Gertrag Ford transmissions and Molex.³²⁹

Figure 2.14. Automotive production in the Slovak Republic



Source: Beniak, J. *Slovak automotive industry: Present and future vision*, 2010, p. 20.

The automotive cluster is typically built around a skeleton of the value chain linking the producer of cars with its suppliers, educational institutions, schools, etc., and these may be further linked with manufacturers of specialised industrial equipment, electronics, plastics, rubber and textiles.

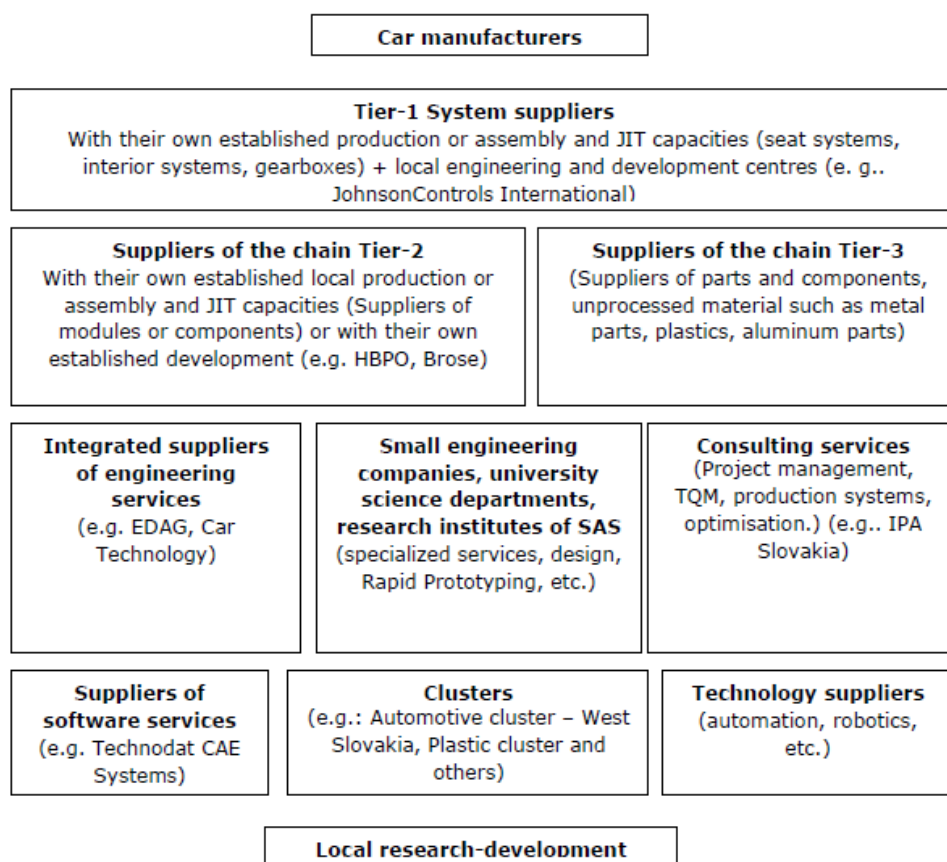
The structure of the supply network is illustrated by Fig. 2.15. Some of the companies in the industry enlarge their activities in research and development, which enables them to be more flexible to customers' demands. The support of innova-

³²⁹ Jakubiak, M., Kolesar, P., Izvorsky, I., Kurekova, L., 2008. *The Automotive Industry in the Slovak Republic: Recent Developments and Impact on Growth*. Washington: The international Bank for Reconstruction and Development / The World Bank, p. 31.

tion is becoming very important in Slovakia, not only in the field of the automotive industry, but also for other sectors of industry such as electrical engineering, ICT, chemical industry, etc.³³⁰

The main areas of activity³³¹ of the automotive clusters, beside car production, in Slovakia are – E mobility, bio fuel, hydrogen/methanol fuel cells, education/automotive managerial academy, networking and services for SMEs, and cooperation in EU projects and funds.

Figure 2.15. Structure of the supply network



Source: *Automotive industry. 2013. Sario. p.13 (p. 6)*

³³⁰ 2013. Automotive industry. 2013. Sario. p. 5 Online: http://www.sario.sk/userfiles/file/Ensa-rio/PZI/sectorial/auto/automotive_industry.pdf

³³¹ Bíro, M. Automotive clusters. Online: http://www.siea.sk/materials/files/inovacie/cluster_road-show/presentations/first_day/MMroad_Biro.pdf

Opportunities for the development of the automotive clusters are found in the support and development of the supply base of local companies with the aim of building-up own research and development units. Other important fields are: support of students e gifted in technical sciences, implementation of Lean principles, costs reduction, processes optimisation, development of innovative activities in plants, support for project networking, participation FP7 research projects, development of e-mobility strategy and cluster initiative development.

2.3.2. Creative-industry LPS

Creativity has become a motivating force of economics. Nowadays, the development of creative industries significantly influences the growth of GDP and declares its importance in regional and local development. Human creativity has become the motivating force of the economic development in the world. It is a process of generating ideas, expressions and forms, either when looking for new ways of tackling existing problems, of re-interpreting existing realities or searching for new opportunities³³². Creativity is the building stone of the creative economy. The creative economy is defined as industries that have their origin in individual creativity, skill and talent, and which have a potential for wealth and job creation through the generation of ideas, products and/or services (The Office of Cultural Affairs & Special Events, 2010). The creative economy has the potential to generate income and jobs through promoting social inclusion, cultural diversity and human development³³³. It embraces economic, cultural and social aspects interacting with technology, intellectual property and tourism objectives. It is a set of knowledge-based economic activities with a development dimension and cross-cutting linkages at macro and micro levels to the overall economy. It is a feasible development option calling for innovative, multidisciplinary policy responses and interministerial action. At the heart of the creative economy are the creative industries³³⁴. Outputs of the creative economy and its industries generate a creative sector. The development of a creative sector can mean a new dimension and source for the territorial development that brings new forms of innovations, creativity, partnerships and networking. To develop a creative economy successfully, it is necessary to know the region or place and to support key creative economy fac-

³³² Council of the European Union (2009) Council Conclusions on Culture as a Catalyst for Creativity and Innovation. 2941th Education, Youth and Culture Council meeting, Brussels, 12 May 2009. Available at: http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/educ/107642.pdf> accessed on 10.10.2012

³³³ Deisbury, E. S., Basu S. R. 2010. The Creative Economy Leading Trade and Innovation. United Nations Conference on Trade and Development. Available at: http://www.unece.org/ceci/ppt_presentations/2010/ic/basu.pdf, accessed on 13.07.2013.

³³⁴ UNCTAD. 2008. Creative economy report 2008. 357 p. Available at: http://unctad.org/en/docs/ditc20082cer_en.pdf, accessed 23.08.2013

tors: leadership and participation, awareness and education, infrastructure, investments and policy³³⁵.

Cultural and creative industries, which flourish at local and regional levels, are in a strategic position to link creativity and innovation. They can help to boost local economies, stimulate new activities, create new and sustainable jobs, have important spill-over effects on other industries and enhance the attractiveness of regions and cities. Creative industries are therefore catalysts for a structural change in many industrial zones and rural areas with the potential to revive their economies and contribute to a change in the regions' public image. They should be integrated into regional development strategies in order to ensure an effective partnership between civil society, businesses and public authorities at regional, national and European levels³³⁶. Without the direct involvement and participation of all of these subjects, it is not possible to talk about the sustainable and market oriented development of the territory³³⁷.

Creative industries are a typical phenomenon of modern economies, and “they are moving from fringes to the mainstream economics”. The urban nature of creative activities suggests that creative industries are not homogeneously distributed across the territory and such urban local production system (LPS) as large cities and metropolitan areas should be more specialised than others, showing characteristics of Creative LPS. In order to use an operational definition of the creative production systems, Lazzaretti, Boix, and Capone defined the creative LPS as those with a high concentration of creative industries or LPS with a high concentration of companies or employees in creative industries. Locality, region and the city are important actors which should play an important role in developing and attracting talents. Creative industries tend to concentrate mainly around large and

³³⁵ Hamilton, L., Arbic, A. and Baeke, G, 2009, Building the Creative Economy in Nova Scotia, 19 p. Available at: <http://www.novascotiacan.ca/pdfs/report.pdf>, accessed on 13.07.2013, quoted from Barrieau N, Savoie D. J., 2006, Creative Class and Economic Development: The Case of Atlantic Canada's Urban Centres, Canadian Institute for Research on Public Policy and Public Administration.

³³⁶ European Commission, 2010, Communication from the Commission to the European Parliament, the Council, the European Economic and Social committee and the Committee of the Regions) Regional Policy contributing to smart growth in Europe 2020. Available at: http://ec.europa.eu/regional_policy/sources/docoffic/official/communic/smart_growth/comm2010_553_en.pdf, accessed on 13.07.2013.

³³⁷ Borseková K, Petříková K., Vaňová, A. 2010. Places marketing as a tool of territorial development and its application in the Liptov region in Slovak Republic. International Congress “Regulation and Best Practices in Public and Nonprofit Marketing”, Bucharest, Romania. 11 p. ISBN 978-973-709-514-5.

medium cities, forming creative local production systems³³⁸. There are a few types of creative local production systems, and the two most common should be regarded as creative cities and creative clusters.

In the creative cities and creative clusters, the important elements are local and regional governments and their approach to the management and policy. Local and regional governments play a vital role as they are in the position to provide an attractive place for creative professionals to live and work, as well as to develop a supportive regulatory environment that encourages sustainable creative industries³³⁹. Through the participation of government at all levels the social conditions, representation, labour market and employment for creative people, together with living and residential environments, amenities, clusters and incubators, in the creative territories are developed and built, including the potential effects of social and economic displacement³⁴⁰.

Creative cities and regions are areas where the sharing of knowledge and experience takes place relatively free of limitations. Creative cities and regions share some key features. These are:

- (1) enable and promote interaction and openness at all levels;
- (2) promote innovative cluster interactions that might lead to unexpected synergies and outcomes; and
- (3) encourage creative universities and their partnerships with other innovative clusters³⁴¹.

According to Kloudová, a creative city is a place where a person likes to live, where a creative environment is established and where cultural and sport possibilities are supported by the local administration. A creative city can be seen as a territorial unit where economic, social, cultural and political networks develop

³³⁸ Lazzaretti, L., Boix R., Capone F, 2008, Why Do Creative Industries Cluster? An Analysis of the Determinants of Clustering of Creative Industries, Summer Conference CBS Denmark, p. 35.

³³⁹ Brecknock CH (2004) Creative capital: creative industries in the creative cities. Available at http://www.brecknockconsulting.com.au/07_downloads/Creative%20Capital-brecknock%202003.pdf accessed on 12.12. 2012

³⁴⁰ Deisbury, E. S., Basu S. R. 2010. The Creative Economy Leading Trade and Innovation. United Nations Conference on Trade and Development. Available at: http://www.unece.org/ceci/ppt_presentations/2010/ic/basu.pdf, accessed 13.07.2013 and Romein A and Trip JJ. 2008. Theory and practice of the creative city thesis: the cases of Amsterdam and Rotterdam. Paper presented at the ACSP-Aesop 4th Joint Congress 'Bridging the divide: celebrating the city', 6-11 July 2008, Chicago

³⁴¹ Özsoy A, Aksoy M, Dursun P, Paker N, Erkök F, Uz Sönmez F and Uzer E. 2006. Creativity in Higher Education: Sub Project Creative Universities and Their Creative City: Regions, ITU Institutional Report on the EUA Creativity Project 2006-2007.

because of favourable conditions that stimulate different forms of creativity. The urban concentration of companies improves productivity for two reasons: on the one hand, it constitutes a source of competitiveness and it stimulates the spread of specialised products. On the other hand, it strengthens creativity and innovation thanks to the flow of new ideas and know-how. This place is characterised by openness, tolerance, cultural background, non-corrupt environment and higher concentration of creative personalities. The creative cities should include places that build their development on scientific potential (for example the Silicon Valley) or on cultural or another creative assumption. A creative city is an urban complex, where cultural activities of various sorts are an integral part of the functioning of the city's economic and social life, and includes intellectual capital applied to products, processes and services³⁴². Florida says that “regional economic growth is driven by the location choices of creative people – the holders of creative capital – who prefer places that are diverse, tolerant and open to new ideas”³⁴³.

Across the world, the creative sector is booming. Economic development agencies everywhere have identified the creative industries as a growth sectors, and most are supporting them through some forms of cluster-based development strategies that understand these sectors in both cultural and business terms. Creative clusters are places to live as well as to work, places where cultural products are consumed as well as made. They feed on diversity and change and so thrive in busy, multi-cultural urban settings that have their own local distinctiveness but are also connected to the world. According to Kloudová, the creative cluster is very important for the development of the creative economy. The creative cluster connects private and public activities and helps the development of a creative city or creative region and is also able to enforce creative ideas. The results of the creative cluster initiatives accompanied their meaning and now this approach is also used for the creation and enforcement of new and creative initiatives, creative cities and products.

The conceptual basis for the creative clusters can be found in the work of Porter, who is probably the most important and influential author of the cluster theory. He defines a cluster as “a geographic concentration of interconnected companies and associated institutions and companies, connected in specific areas, which are common as well as complementary”³⁴⁴.

A creative cluster that is able to concentrate relevant actors and to create an environment suitable for creative ideas enforcement, is undoubtedly the important

³⁴² Kloudová, J. et al., 2010, *Kreativní ekonomika – Trendy, výzvy, příležitosti*, Grada, p.218

³⁴³ Florida, R. 2002. *The rise of creative class: And How It's Transforming Work, Leisure and Everyday Life*. Basic Books: New York, p. 434.

³⁴⁴ Porter, M. E., 2005, *Local Clusters in Global Economy*; [in:] Hartley, J., *Creative Industries*, Blakwell Publishing, Oxford. p. 260-261.

factor which should help to enforce creative products, creative companies, to help create creative cities and to develop creative economy.

According to De Propriis, a creative cluster is a place that brings together a community of creative people, who share an interest in innovation but not necessarily in the same subject; a catalysing place where people, relationships, ideas and talents can spark off of each other; an environment that offers diversity, stimuli and freedom of expression; a thick, open and ever-changing network of inter-personal exchanges that nurtures individuals' uniqueness and identity³⁴⁵.

In Slovakia, as well as in other European countries, the creative sector is booming and the development of creative industries attracts increasing attention. In this context we can also see the activation of creative LPS in Slovakia. In 2013, the second biggest city in Slovakia Košice, became the European Capital of Culture, which was an initial opportunity to create and develop the first real creative city in Slovakia. One of the activities within the project Košice - European Capital of Culture for 2013, was the establishment of the first creative cluster in Slovakia. The establishment of that cluster in this territory was based on the attractive endogenous potential of the territory that includes quality human resources including creative classes, universities and research institutions, rich cultural and historical heritage, developed industrial production, existence of IT cluster etc. Cooperation among private, non-profit and public sector has been improving in last years. All these characteristics based on the endogenous potential, supported by positive external influences (European Capital of Culture 2013) through synergy effect created suitable conditions for the establishment of creative orientated LPS.

2.3.3. LPS with a dominant industrial company

According to many theoretical concepts of regional development which are dealing with any form of LPS the importance of large companies for the regional development is undeniable. The importance of large, especially industrial, companies as innovative poles of regional development in the Slovak Republic is also stressed by the National Council of the Slovak Republic (National Strategy for Regional Development for 2007-2013)³⁴⁶.

Examples of such LPS with a dominant industrial company in Slovakia are: ŽP Group, automotive clusters (VW, KIA, Peugeot-Citroen).

³⁴⁵ De Propriis, L. 2008, [in:] Chapain, C., Cooke, P., De Propriis, L., MacNeill, S., Mateos-Garcia, J., 2010, Creative Clusters and Innovation. p. 11. Available at: <http://www.nesta.org.uk/library/documents/>

Creative_clusters_print_v2.pdf, accessed on 13.07.2013.

³⁴⁶ National strategy for regional development for 2007-2013. Bratislava, 2006

The corporate functions show that a big industrial company could influence the development of a region in various fields. Its impact on employment in the region is certainly not negligible (in comparison to small businesses) taking into account the recruitment of hundreds and often thousands of workers, not only from the region where the company is located, but also from surrounding regions. A big company can often seem like the only entity undertaking various activities that are beneficial for the region as a whole, especially when one looks at the fact that local governments generally suffer from a lack of financial resources required to implement these activities.

Generally LPS with dominant industrial company could be based on³⁴⁷:

- market demand;
- business opportunities and access to new markets;
- diversification of non-industrial activities;
- competitive pressures;
- more effective production and supply of inputs.

Market demand means that the industrial company reacts to the growing demand for its outputs through: creating of / or step into the group of companies which carry out their activities in the same / or in similar business fields. In this consortium the big industrial company could be the most important leader.

Market demand may not only be caused by industrial demand but may also be caused by company's employees and their families. Most company employees live in the same area where the company is located, respectively in its attraction zone. It needs to meet the growing needs of the population in terms of technical and social infrastructure. In such situations a large company seems to be capable of arranging or at least contributing to the realisation of such activities. Demand could be strong factor for the starting of LPS establishment and coordination by an industrial company that is not strictly oriented on industrial production only. On the other hand, practical experiences show that these LPS are often strongly linked to the success of the big industrial company.

Business opportunities and access to new markets mean creating new fields in industry where a big industrial company can spread its activities. A typical example could be the IT sector. Another common reason is to penetrate into a new market in new countries or to be closer to customers.

Diversification of non-industrial activities can be realised if the big industrial company is successful at the market. Thanks to the sufficiency of financial capital, such a company may have a tendency to set up subsidiaries not only in the areas

³⁴⁷ KOLOŠTA, S. 2008. New trends in regional development and opportunities for its application in regions of the Slovak Republic, p. 23

in which it usually operates. The diversification of the business activities may help big industrial company to settle the crisis in the industrial sector. Good example could be the investments in tourism – creation of new jobs could help to solve regional unemployment.

Innovations and education of employees positively influence the competitiveness of the big industrial company and the region. “Large companies in the region have well established concepts and methods of education as well as access to innovation. Usually in these areas they have created strategic development documents, or at least defined additional procedures or plans. They also have an extensive network of institutions with which they collaborate.”³⁴⁸ For this purpose, the big industrial company sets-up vocational schools and supports students who want to improve their education and skills at college/university.

A company that focuses on industrial production (e.g. metallurgy) tends also to focus activities on the modernisation of production and investments into research and development with a focus on the development of new materials and the optimisation of the technological parameters of the production. Modern technology requires skilled personnel to operate it, thus creating space for the creation of new jobs and cooperation with research institutes and universities. In order to maintain and strengthen their position on the market large companies continue to invest in innovation technology and communication infrastructure.

Innovative activities are conducted mainly in large companies and companies that cooperate with each other. Similarly, the Slovak national strategic reference framework for the period 2007-2013³⁴⁹ pointed out the importance of the innovation clusters in industry and services which use and develop the innovative potential of the local resources and are able to find their market space in a competitive environment. If the region has a rich industrial tradition it is possible to expect development of the domestic innovation potential in it.

In recent years, the percentage share of companies with innovation activities in Slovakia is growing steadily. More than 50% of the innovative activities are realised in large companies with 250 or more employees, following the fact that a large company has more capital, financial and human resources. “Large companies show a higher degree of financial stability and better business planning. Therefore they are more suitable recipients of financial assistance aimed at the absorption of innovation...”.³⁵⁰ The situation is also similar in companies outside the EU, for example in Norway. The probability that the company will innovate in

³⁴⁸ Šipikal, Parížková, 2009. Učiace sa regióny. p. 89.

³⁴⁹ Návrh “Projekt inovačnej stratégie SR na roky 2007 až 2013”. Dostupné na internete: <http://www.economy.gov.sk/pk/1789-2007-1000/ma.htm>.

³⁵⁰ Baláž. 2005. Politika inovácií v Slovenskej republike, p. 522

Norway is directly proportional to its size. The bigger the company is the more innovations are realised.³⁵¹ Big companies have more options to produce a wider range of products. In fact there are various processes within the company which can increase the chance - at least somewhere in the company - to create appropriate conditions for innovation.

Effective input delivery system - done through establishing or localisation of suppliers near the big industrial company (often as majority stockholder). When the companies are using the same internal regulations and IT systems this could contribute to a better delivery system. This also helps to eliminate risk and prioritize other customers, so the supplies are better protected.

Big industrial company could negatively influence the region for example through: limiting wage settlements in the region, professional application only in certain areas, political and business lobbying, more significant effects during the economic recession in the industry and its impact on the region.

2.3.4. Industrial Parks

An industrial park is a type of real estate development purposely designed and zoned to house industrial and manufacturing buildings. They provide favourable conditions for the development of entrepreneurial activities.

Industrial parks are typically located away from residential and commercial areas, and in locations where land is relatively less expensive. These locations are equipped with communications and utility networks (water, gas, electricity, transport, telecommunication, drainage, etc.); in some cases, there are production halls already prepared. Industrial parks' areas are proprietary and are devoid of old burdens.

The industrial parks in Slovakia are regulated by Act No 193/2001 supporting the establishment of industrial parks. The Act defines an industrial park as an area defined by urban planning documents on which industrial production or services provision by one or several businesses is carried out. The industrial parks are established by municipalities or regions on their own land. This territory must be equipped with primary technical infrastructure (water, gas, power, transport, telecommunication, sewage, etc).

The Slovak government will provide state financial assistance to the local council or authority that wishes to establish a new Industrial Park. The subsidies from the national budget are granted to municipalities or regions to build the technical in-

³⁵¹ Kološta Stanislav, Flaška Filip, Lunnan Anders, Šofrancová Katarína, Čapková Soňa, Švihlová Dana. 2010. Innovation in Slovakia and in Norway, Arad, In: Studia Universitatis "Vasile Goldis", Seria Stiinte Economice, Anul 20/2010 Partea I, p. 38.

infrastructure necessary to create an industrial park and as reimbursements for the land which could be claimed for the establishment of the park. A grant aimed at infrastructural equipment that is necessary for the establishment of an industrial park could reach up to 70 % of the total costs. The local/regional authority must have a contract in place with a new business entrepreneur for the use of the park.

The readiness of the sites is not the only benefit for the potential investor. If the investor fulfils the legal conditions, he may also be given investment aid. Regional investment support and support for employment in investment projects is provided, as well as support for industrial production projects, technology centres, strategy services centres and research and development centres.

Investment aid in support of the initial investment and job creation is provided in the form of:

- subsidies for the acquisition of long-term tangible fixed assets and long-term intangible assets;
- relief on income tax;
- contribution to the creation of new jobs;
- transfer of immovable property or exchange of real estate property at a price lower than the general market value of the assets.

The scale of services is variable and depends on the number of the companies in the park and the specific investors requirements. Standard services provided independently from the industrial park significance and type include: protection of property, transportation and technical infrastructure maintenance.

The industrial park may be managed by the municipality or by a private company. Park supervision might be guaranteed by a company which offers to residing entrepreneurs a set of services (accounting, marketing, loan assistance, investment, development and legal advisory services, etc.).

Industrial parks have become a popular way for local/regional authorities to foster business development. In the hope of attracting companies to their regions, some municipalities and regional governments invest in industrial parks. High capital costs are crucial for industrial parks and local/regional authorities are usually only able to cover them with the help of national and international funds. However, there are also a few private industrial parks set up mainly by foreign developers.

Several industrial parks have been established in each of the eight Slovak regions thanks to co-financing from the EU and state budget. Some of them have been established as a result of big investor interest, which encouraged the decision of related businesses to locate in the park. Industrial parks are usually classified as “brown” if the park is established on existing but disused facilities of former

companies or “green” if developed in a new area. Brown parks have been given special attention in last years because of revitalizing a local brown field industrial zone. Lots of newly built green industrial parks have been set up on very fertile land without any long-term conception of development. In the east of Slovakia some of the new parks are not getting enough investors to move in.

There are different park specialisations - a science/technology park, research park, eco-industrial park, logistics parks, etc. A Science and Technology Park is an initiative based on the promotion of commercial research results and development by small and medium businesses, functionally and economically based on the development of real estate (land, buildings, and networks). For example, The Central European Park for Innovative Technologies Bratislava is very closely linked with the Slovak University of Technology. The year 2013 can be considered as a breakthrough in support for science parks and high-tech centres established at universities because the Ministry of Education has allocated funding to build eight science parks.

2.3.5. Industrial symbiosis

Industrial symbiosis is a voluntary cooperation of enterprises that aim to optimise production costs and improve the environment via the use of by-products and wastes generated by some enterprises as production inputs for others, the sharing of increation, services, utilities, energy, and other resources. It has been defined as a process engaging ‘traditionally separate industries in a collective approach to competitive advantage involving the physical exchange of materials, energy, water, and by-products. The keys to industrial symbiosis are collaboration and the synergistic possibilities offered by geographic proximity’ (Chertow 2000).³⁵² In other words, the industrial symbiosis is a group of local companies, communities, and other actors exchanging energy, water, by-products and waste (Wolf, 2007).³⁵³

Chertow (2007)³⁵⁴ distinguished between two models of industrial symbiosis development – a planned model and a self-organising (spontaneous). The spontaneous development of industrial symbiotic networks happens rather rarely, and its emergence requires a long period of time. The development of spontaneous networks is dependent on the way that the social, economic, technical and political conditions embedded in the geographical settings support or influence the indus-

³⁵² Chertow, M. R., 2000, Industrial symbiosis: Literature and taxonomy. “Annual Review of Energy and Environment”, vol. 25, 2000, pp. 313–337.

³⁵³ Wolf, A. 2007. Industrial symbiosis in the Swedish forest industry. Linköping Institute of Technology. Linköping.

³⁵⁴ Chertow, M. R. 2007. Uncovering “industrial symbiosis”. *Journal of Industrial Ecology* 11 (1), 11 – 30.

trial by-product exchanges. If they are more proactive, there is more chance of development (Mirata, 2005; van Beers et al., 2007; Baas, 2008).

There are several forms of planned industrial ecosystems, where companies are interconnected via the integrated use of energy, waste material or by-products. Eco-industrial parks are known to be the most widespread form of artificial modelling of symbiotic systems, whose functioning implies the existence of close inter-company connections that resemble the ties typical for natural ecosystems. As a rule, the development of an eco-industrial park is limited by the borders of one industrial agglomeration. An alternative approach to the creation of planned inter-company networks involves the combining of businesses located in different regions but looking for the establishment of symbiotic ties for a variety of reasons, beginning with the natural desire to exploit win-win situations among firms. However, planned eco-industrial initiatives have resulted in many failures. A coordinative function was found to be undoubtedly helpful only to accelerate number and complexity of new exchanges working from an established base (Jacobsen, Anderberg, 2005).³⁵⁵

Later the third - middle-out approach to industrial ecosystem development was defined by Costa and Ferrao (2010).³⁵⁶ It is an interactive process wherein the government, industries and other institutions can influence the context conditions in order to motivate and support business synergies.

The activities of industrial symbiosis can be oriented at a single dominant industry or multi-industry. A majority of companies belong to a single industry and generally use similar resources and generate similar products, co-products, by-products and residuals (Chertow, Ashton, 2004).³⁵⁷

According to the characteristic features of the exchange there are five different waste exchanges: within a facility, company or organisation; among companies co-located in a defined eco-industrial park; among local companies that are not co-located; and among companies organised “virtually” across a broader region (Chertow, 1999; 2000; Ehrenfeldt and Chertow, 2002). For all types of industrial symbiosis initiatives industrial ecologists usually distinguish between greenfield development, meaning the development of a new park or network, and brownfield redevelopment, which refers to the restructuring of an existing park (Wolf,

³⁵⁵ Jacobsen, N. B., Anderberg, S., 2005, Understanding the evolution of industrial symbiotic networks – The case of Kalundborgin, edited by M. J. J. C. J. M. van den Bergh (Eds.). *Economics of Industrial Ecology: Materials, Structural Change, and Spatial Scales*, MIT Press, Cambridge, MA.

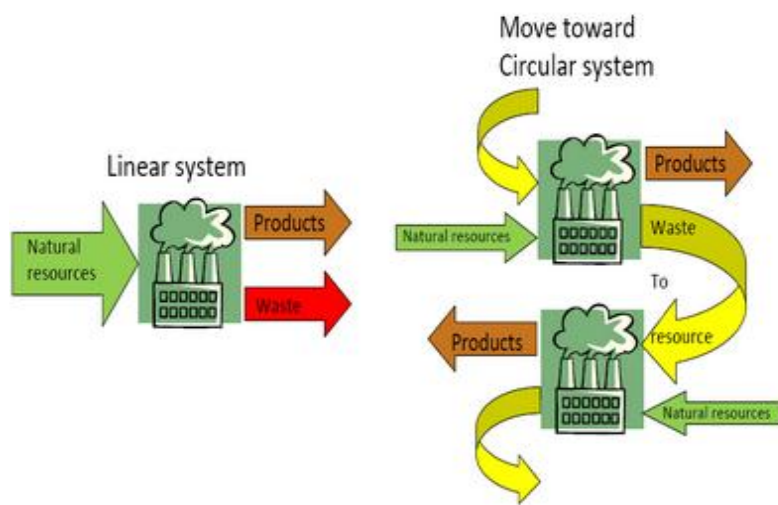
³⁵⁶ Costa, I., Ferrao, P. 2010. A case study of industrial symbiosis development using a middle-out approach. *Journal of Cleaner Production* 18, 984 – 992.

³⁵⁷ Chertow, M. R., Ashton, W. S. 2004. Differentiating industrial complexes and industrial symbiosis. Association of American Geographers Centennial Conference, Philadelphia, USA.

2007).³⁵⁸ The flow of exchanges within the system of industrial symbiosis is presented in Fig. 2.16. and is comparable with the classical, linear system of productions.

The main idea of industrial symbiosis as a part of industrial ecology is to reduce virgin material and energy inputs by utilizing waste, by-products, and waste energy through exchanges among relevant stakeholders (Korhonen, Snäkin, 2003).³⁵⁹

Figure 2.16. The difference between classic approach in the production and industrial symbiosis



Source: UNDP, 2011.

However, at company level, the motivation behind most of the exchanges is related to: reducing costs by seeking income-producing applications for unwanted by-products and waste; producing innovative products and process changes; increasing revenue, diversifying business; managing risk (Laybourn, Morrisey, 2009).³⁶⁰ The emergence of the multilateral resource sharing in the form of industrial symbiosis could be promoted by the local environmental regulations.

In the Slovak Republic, a few examples of industrial symbiosis networks can be identified (e. g. Detva). They were not established primarily as eco-parks or other

³⁵⁸ Wolf, A. 2007. Industrial symbiosis in the Swedish forest industry. Linköping Institute of Technology. Linköping.

³⁵⁹ Korhonen, J., Snäkin, J. P. 2003. Industrial ecosystem evolution of North Karelia heating energy system. *Regional Environmental Change* 3 (4), 1 – 12.

³⁶⁰ Laybourn, P., Morrisey, M. 2009. *National Industrial Symbiosis. Programme: The pathway to a low carbon sustainable economy.* Kings Norton, United Kindom: International Synergies.

forms of industrial symbiosis, but they have developed over decades and their roots are in the historical and economic development of Slovakia.

Nowadays, the first conceptual incentives to study the conditions of industrial symbiosis in the Slovak private sector appeared under the project REPROWIS. In 2010 – 2011, within the project, research among 500 small and medium enterprises was carried out. The aim of the project was to identify the possibilities to connect the businesses in the field of inputs, outputs and free capacities. The results show that only seven entities from 500 businesses have implemented the system of environmental management – ISO 14 001. The most common forms of environmental pollution are: waste production, air pollution and water pollution. Lack of interest or lack of information about techniques for reducing negative environmental impacts have been identified as the most common barriers to the implementation of eco-innovation processes in the companies. Companies' priorities oriented towards environmental protection are absent, as the companies prefer the financial aims – profit. The environmentally friendly activities are realised only if they cost nothing. On the other hand, the survey shows positive attitude among the respondents to support and implement the ideas of industrial symbiosis in their activities. 52% of the companies would like to join the system of industrial symbiosis; 18% of the respondents are able to join after more detailed information on the level of their participation. Research findings indicate the problematic issues of industrial symbiosis implementation in the Slovak Republic. But the positive and perspective approach of the respondents indicates that the potential of industrial symbiosis could be developed in Slovak regions (Project REPROWIS, 2013).³⁶¹

2.3.6. Biomass LPS

Energy demand in many countries is growing rapidly and energy is considered as a cross-cutting issue that contributes to the achievement of all of the Millennium Development Goals. Decisions taken in the energy sector in the coming years will have long-term consequences for the investments, society and global climate. According to the Renewables Energy Directive the overall share of energy from renewable sources in 2020 in the EU shall be 20%.³⁶²

Biomass as a form of renewable energy is seen as a source with the greatest potential. Biomass can be considered as an important resource to enable extensive product competitiveness of the agricultural sector, which contributes to important

³⁶¹ Study of Application of Industrial Symbiosis (Is) As a Tool to Reduce Production Waste. Project REPROWIS. Accessed: <http://reprowis.eu/img/files/IS-Study.pdf>; on 02.09.2013.

³⁶² Directive 2009/28/EC, 2009. Online: <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=Oj:L:2009:140:0016:0062:en:PDF>

areas of the economy, such as: reducing unemployment, rural revitalization, sustainable development and improving the quality of the environment.

Especially in rural areas, bioenergy has a chance to support development, because it can exploit the stock of biomass, both agricultural and forest. Placing bioenergy plants in appropriately selected areas will create jobs in different sectors – management, research or services. In this way, bioenergy can become a driver of local and regional economy. It is possible that the creation of a bio-cluster, especially a biomass LPS, will encourage the innovative behaviour of other entities. Exported energy can further stimulate the economic activity in the region. Benefits are related to the improvement of the infrastructure, but also to the reversed migration due to better opportunities and better environment than in urban areas. These activities may contribute to the diversification of the rural areas and to the increased resilience of the rural system.

Entities in biomass LPS are faced with many problems related to the lack of initial increation and knowledge on new technologies. The lack of experience in implementing similar projects is also a significant barrier to achieving socio-economic development.

These problems could be mitigated if the biomass local production system really operates and is a part of a regional innovation system. This would mean that the entities directly engaged in production, processing, storage and distribution of biomass (for example heating equipment operators) could be associated within a network of LPS comprising:

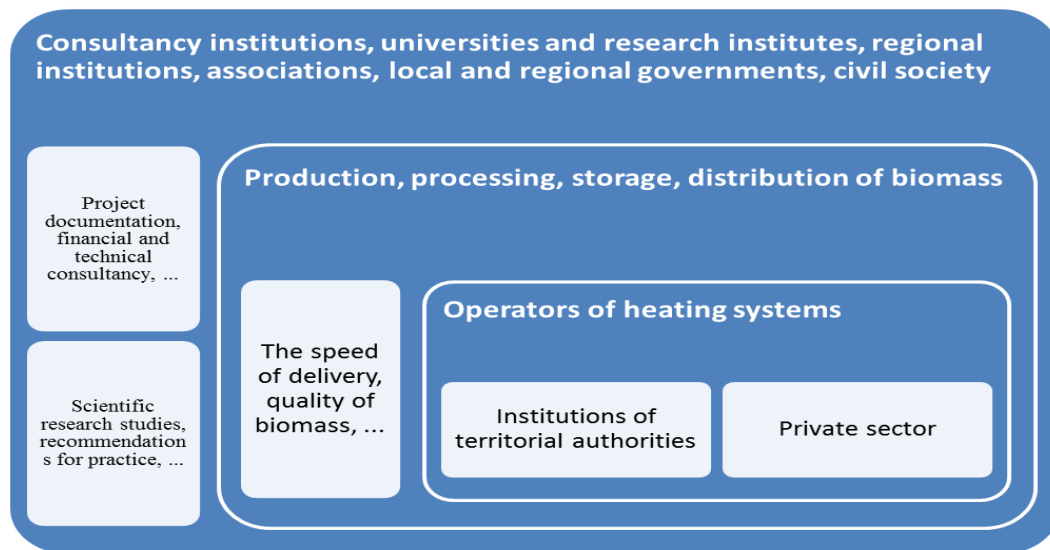
- consulting institutions (project documentation, financial and technical advice);
- universities and research institutes (e.g. undertaking studies on biomass productivity in specific areas focused on the specific conditions for biomass production (as it happened in the Meili mountain in China)³⁶³;
- regional institutions, associations, local and regional authorities and civil society, as illustrated in Fig. 2.17.

The practical benefits of this proposed biomass LPS are related to: better and faster transfer of increation between involved actors; effective advising; exchange of experiences, networking, more effective solutions to unforeseen operational problems; streamlining the operational processes; saving transaction costs. To achieve this, the processes of starting and managing the LPS, focused on the biomass, should be reconsidered.

³⁶³ Ming, Q., Guo, S.m Jiao, Y., 2011, High Gradient Effects of Forest Biomass Energy in Mountainous Region. A Case of Meili Snow Mountain, “Procedia Earth and Planetary Science”, p. 320.

Primarily an analysis of the resource base, method of obtaining energy from biomass and energy production cycle should be carried out. Other important parts are mainly: management of the project, feasibility study, business plan and other technical and economic studies.

Figure 2.17. Proposal of biomass LPS



Source: Own proposition.

When choosing a method of energy production from biomass, it is necessary to analyse the resource base available in the region. The creators of the biomass LPS must determine what the annual needs of biomass are, what its monthly fluctuations will be, and evaluate the logistics (transport, electricity and heat). Imports of biomass from longer distances are not a problem nowadays, but significantly affect the cost of primary raw materials and at the same time reduce the potential to lower greenhouse gas emissions.

Choosing a technology for energy production would be significantly affected by the nearest raw material base. In areas with higher animal production, as well as in urban areas with a shortage of primary raw materials and high potential use of bio-waste, it is preferable to produce biogas and then install cogeneration units, which will combine the production of electricity and heat. Mountainous areas and areas close to the timber industry should aim at the production of heat from wood products (pellets, chips, briquettes). A similar scenario is possible even in regions with high agricultural production, where the main residual material is straw. The decision about the combined production of electricity and heat in biomass LPS

depends on the connectivity to a power line and the cost of technology. In this case, it is appropriate to use the gasification technology.

The selection of the mode of production of energy from biomass is followed by the analysis of the collection chain – transport – storage. These factors affect the economic and technical factors of the project. According to Sims, transport cost is the most variable part of the cost of primary raw materials.³⁶⁴ An ideal case is an integrated collection of biomass. Transport of biomass plays an important role in the energy production cycle. With the intensification of the use of bioenergy, local and possibly regional materials may not be enough. Transport may include the hidden costs of wear of road infrastructure, higher emissions from vehicles etc. If taxes in the territory are increased, it could cause adverse reactions in the use of new energy sources. Therefore, creators must always demonstrate the contributions of new source together with all costs that might arise in the future.

Reducing the humidity of primary raw material is considered an important part of its logistics. The water content in the solid mass is different for different types of wood and organic crops and reducing moisture always brings a higher added value. It is optimum if the process is carried out at the place of biomass collection to avoid increased costs of transport. If an LPS area starts to grow plants to produce biomass, it will mean regular collection from certain land and therefore the depletion of soil nutrients and minerals. To promote sustainability, it is necessary to return nutrients to the soil (for example through ash). Each combustion process creates a certain amount of ash, which depends on the type of the biomass.

Creators of the biomass LPS should be ready to provide information and answer questions concerning the construction of LPS focused on biomass (method, time, use of technology) for example:

- how and which way the biomass will be transported;
- what is the level of noise produced by traffic and transport mechanisms;
- final price for consumers;
- security of energy supply;
- employment opportunities or other economic benefits;
- impacts on local environment and so on.

Without a systematic approach to biomass and renewable energy in general, it will be difficult to increase the share of energy from renewable sources in the long-term perspective. Therefore, the processes of starting and managing a biomass LPS should be well considered.

³⁶⁴ Sims, R., 2002, *The Brilliance of Bioenergy - in business and in practice*. London: Earthscan Ltd.

2.3.7. Tourism-oriented LPS

In the time of globalisation, the tourism industry belongs to the most significant sources of economic and social development. According to the statistics of the European Union it generates over 10% of EU GDP (directly or indirectly) and recruits 9.7 m citizens in 1.8m businesses.³⁶⁵ The main benefits that flow from the development of tourism are higher employment, sustainable regional development; conceptual use of natural and cultural heritage.

Tourism is connected with the destination (territory) which is composed of various entities as natural sources, cultural and historical sources, entrepreneurs and organisations of public and private sector, provided services and goods consumed in the tourism industry (Patúš, 2012, p. 58)³⁶⁶. To develop tourism, it is necessary to create the product of the destination. If this process is effective, it involves all relevant actors from the public, private and also non-profit sector. All of their activities should be controlled and managed from the quality, time and content point of view.

The developed cooperation of all mentioned stakeholders can culminate in establishing a tourism local productive system or a cluster as a dominant orientation of all activities within the territory. Tourism production system includes all economic activities and actors that contribute to the production and distribution of tourism products and services, i.e. products and services that generate tourist experiences; social groups, cultural features, physical elements that are incorporated into tourism products and services; agencies for regulating the commercial behaviour, social externalities associated with such production and distribution (Britton, 1991, p. 455–456).³⁶⁷ The tourism production system is defined by high concentration of small and medium sized companies with specialisation in the tourism industry. These features very much comply with the Porter's theory of clusters and industrial districts (Porter, 1980, 1985).

The topic of the tourism cluster is researched by many experts; e.g. Montfort (2000), Jackson, Murphy (2002), Beni (2003), Ferreira (2003), Capone (2004), Costa (2005) etc. All authors agree that the tourism cluster is associated with a limited geographical area with involved in tourism activities interconnected active partners (e.g. companies, institutions, service's providers, suppliers, policy makers, universities, competitors etc.). The cooperation among the partners combined

³⁶⁵ EU. 2013. EU policy background. Available at http://ec.europa.eu/enterprise/sectors/tourism/background/index_en.htm; 9. 10. 2013

³⁶⁶ Patúš, P. 2012. Cieľové miesto ako systém. In: *Manažment cieľového miesta cestovného ruchu*, 58 – 68 pp. ISBN 970-80-814- 025- 3.

³⁶⁷ Britton, S. 1991. Tourism, capital and place: towards a critical geography of tourism. *Environment and Planning D: Society and Space*, 9, pp. 452–475.

with excellent management of the network, and coordination of the production chain can generate the original product – a touristic destination as a competitive advantage (Beni, 2003, Ferreira, 2003).

Based on the type of relations between enterprises and institutions a tourism cluster can be established as a horizontal or a vertical one. The horizontal tourism cluster consists of strategic alliances, where agreements can be in the form of agreements between enterprises that have the same principal activity (i.e. among enterprises in the field of entertainment, transport and catering) and in the form of agreements between enterprises working with the same group of customer satisfaction, but offering different product components to the customers. The vertical tourism cluster is created as a strategic net with unilateral supplier-customer relation among the partners in such a way that the activities of the agreement are fulfilled by one of the parts, which gives its output to the others in exchange for a payment (Rodrigues, 2001, p. 307).³⁶⁸

Cluster's main element is the collaboration. However, the natural competition and rivalry is inevitable for the future cluster development especially for the innovation process, which bring the higher added value not only for the customer but also for the involved actors. (Kindl da Cunha, S., da Cunha, J. C., 2005).

The issue of the conceptual tourism development is a very current topic in Slovakia. The first efforts to establish a tourism cluster appeared in 2008, in the Liptov region. The creation of the cluster was initiated from the bottom (from the clustered entities). Later this idea was also developed in other parts of Slovakia (e. g. Orava, Turiec, Vysoké Tatry). The first clusters were aimed at marketing activities, promotion of destinations, preparing strategic development plans in the field of tourism, developing regional products and creating product packages for the guests. The clusters interconnected entities from the private sector (e. g. aquaparks, hotels, ski-parks, thermal parks, etc.), local municipalities that represents the largest cities in the regions where the cluster is situated, non-profit organisations. The tourism clusters also cooperate with research institutions and universities, so they have become important holders of innovations.

Because of the organisational inadequacies and lack of financial sources for tourism development radical changes have been adopted at national level. Slovak national authorities demonstrated the importance of tourism development by adopting Act No 91/2010 on the promotion of tourism. Its implementation initiated the establishment of local and regional tourism organisations. The organisation's tasks are oriented at the development and creation of products, attracting domestic and foreign customers, marketing and promotion activities, destination branding,

³⁶⁸ Rodrigues, A. B. 2001. Turismo rural. São Paulo: Contexto.

planning and coordination tasks, selling the destination, development of tourism infrastructure (Kuhn, Tomášová, 2011).³⁶⁹

Nowadays, there are 34 local and 3 regional organisations for destination management. The destination management interconnects the entities from all economic sectors in the field of tourism, or the actors that can influence the tourism development in the territory. It plays the role of coordinator and manager of tourism development based on the partnerships and the participation of the members involved (actors in tourism in the territory). The main tasks of an organisation are to: elaborate the conceptual documents for the tourism development and its implementation; promote the destination, realise marketing activities; create, promote and manage the tourism products; create and maintain the integrated increation system; prepare and submit projects for tourism development. The organisations are responsible for declaring their activities to the Ministry of Transport, Construction and Regional Development of the Slovak Republic (Act No 91/2010 on the promotion of tourism).³⁷⁰

One of the examples is the local tourism organisation "Central Slovakia", which is responsible for the tourism development in the region of Zvolenská kotlina. The local tourism organisation "Central Slovakia" is the key coordinating body in the field of tourism for the region with dominant cities - Banská Bystrica, Sliač, Zvolen (see: www.centralslovakia.eu).

2.4. Challenges in the development of local self-governance in Russia

Local self-governance in accordance with the Constitution of the Russian Federation is one of the elements of the political state system that ensures the implementation of the principle of democracy. Local government is characterised by certain signs of government institutions and institutional settings. The social and state nature of the local self-governance institute makes it a central link in the mechanism of interaction between civil society and the state. This is the main role of local government in any state³⁷¹.

The essence of the state nature is such that in the absence of effective mechanisms to limit the power of the state it will always seek to centralize its power, which in its extreme situations leads to authoritarianism. But under the conditions of high globalisation of the modern world and its increation openness an authoritarian

³⁶⁹ Kuhn, I. Tomášová, P. 2011. Úvod do destinačného manažmentu. Príručka pre samosprávy, podnikateľské a iné subjekty k zakladaniu a činnosti organizácií cestovného ruchu podľa zákona č. 91/2010 Z. z. o podpore cestovného ruchu v znení neskorších predpisov.

³⁷⁰ Act No 91/2010 on the promotion of tourism

³⁷¹ Marshalova, A.S. System of State and Municipal Management. Omega - L, Moscow, 2008.

state becomes an international pariah and eventually due to the pressure of domestic and external forces its strength falls.

The paradox of the coexistence of state and local self-governance is that their attempts to increase their influence at the expense of each other lead to the violation of the balance of interests and to a general weakening of their power and the confidence of the population. Centralisation of power in the Central apparatus of the state and the absence of a constructive dialogue with the society leads to decisions that do not reflect the interests of the society, which ultimately results in social development destabilization. In any developed country, the issues concerning the mechanism for the prevention and overcoming a state power crisis are always on the table. As shown by the experience of many centuries, such a mechanism is the local government.

Local government cannot be regarded as a substitute of governmental authorities. Developed local self-governance is a sign of a strong state power. At the same time, a strong local self-governance, undertaking the problems concerning life support at local level, contributes to the strengthening of the state power as well as to the effectiveness of its management. The Institute of local government plays an important role in the development of civil society since all civil rights and active manifestations 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 the rational use of the expenditure part of local budgets;
- to provide minimum living standards for 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-governance by the effective exercise of its powers.

Despite the fact that, in accordance with the legislation, local self-governance 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 local level. This situation is due to both subjective and objective reasons. As to the subjective reasons, they, as it has already been mentioned, are determined by the nature of its power and its pursuit of accretion. As far as the objective reasons are concerned, the main one is that at the present stage, for the vast majority of the municipalities, there are no conditions for the creation of a self-sufficient local budget, which is a consequence of an un-

acceptably great spatial differentiation at the level of the socio-economic development of the country. This differentiation is manifested, first of all, at the level of the subjects of the Federation.

Table 2.1. presents the differentiation index of some of the main macroeconomic indicators for the subjects of the Federation in 2010 (according to official statistics). The 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). Presented in the table are two subjects of the Federation from each Federal District that differ in their financial and economic potential. The population trend of the subjects of the 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 the population. The Republic of Dagestan is characterised by demographic processes that are quite different from all-Russian ones. The data in this table show, 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 life of people is still higher as each subject of the Russian Federation is characterised by heterogeneity of the 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 characterised by underdeveloped transport services, backwardness of social services, low density and low incomes of the 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 (in Ust-Tarxsk district).

The average monthly earning in Ust-Tarxsk district is as much as 0.52 higher than 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 higher than the minimum one (in Kuibyshev district). The analysis of the 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.

Table 2.1. Index of differentiation of the main macroeconomic indicators in the regions of Russia in 2010 (per capita)

Subjects of the Federation	Gross Regional Product 2009	Average Income	Average Monthly Earnings	Average Annual Budget Expenditures	Average Pension	Investments	Population change 2002-2010
1. Russian Federation	1.00	1.00	1.00	1.00	1.00	1.00	0.98
2. Moscow	3.00	2,32	1.83	1.52	1.07	1,42	1.10
3. St. Petersburg	1,40	1,30	1,29	1,60	1,16	1,31	1.03
4. Ivanovo Region	0,35	0,58	0,62	1,06	0,96	0,39	0.92
5. Moscow Region	1.0	1.18	1.21	0.94	1.06	1.02	1.07
6. Arkhangelsk region	1,13	1,02	1,05	1,06	1,24	1,51	0.91
7. Pskov region	0,47	0,67	0,69	0,73	0,95	0,37	0.88
8. Republic of Kalmykia	0,37	0,39	0,55	0,65	0,86	0,50	0.99
9. Krasnodar region	0,73	0,88	0,77	0,75	0,92	1,13	1.01
10. Republic of Dagestan	0,43	0,70	0,48	0,46	0,76	0,50	1.15
11. Republic of Ingushetia	0,16	0,50	0,61	0,89	0,84	0,21	0.88
12. Republic of Mordovia	0,49	0,53	0,56	1,17	0,73	0,69	0.95
13. Samara region	0,80	0,61	0,69	1,02	0,96	0,72	0.94
14. Sverdlovsk region	0,82	1,17	0,94	0,77	1,02	0,78	0.95
15. Yamal-Nenets district	5,51	2,21	2,51	2,84	1,51	1,25	1.03
16. Republic Of Tyva	0,37	0,53	0,83	1,07	0,94	0,22	1.00
17. Novosibirsk region	0,70	0,85	0,87	0,93	0,98	0,65	0.99
18. Magadan region	1,31	1,45	1,74	2,71	1,58	1,36	0.89
19. Jewish Autonomous Region	0,60	0,80	0,94	1,11	0,96	0,99	0.92

The integral indicator of the level of socio-economic development of territories compares the 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 by almost a quarter.

The spatial heterogeneity of the socio-economic development of the country in general, and of each subject of the Federation in particular enables us to talk about the great originality of the Russian federalism. Not by chance there appeared the

concept of “unitary federalism”³⁷². Translated, this means, that the Russian state is federal in form and unitary in content.

The Constitution adopted in 1993 was simply obliged to create a legal framework for the establishment of local government. In 1995, a law was adopted “About general principles of local self-governance organisation”. 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-governance was adopted. Nevertheless, problems concerning local self-governance 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-governance. Probably, local self-governance system should be established step-by-step, its development should take more time, with regional specifics being taken into account. In this case it 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, through the strengthening of the 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 for the fulfilment of the expenditure commitments and the 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 creation 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 for fiscal system creation and this is not surprising, because issues concerning the economy model still cause heated debate. By declaring the state to be an ineffective owner, the private sector has privatised mineral raw resources without delay. As a result, the public sector of the economy has been sufficiently reduced, primarily developing in the economy are base materials sectors, and due to all these the Russian budget today depends on the free market oil price. 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 of this requires technological modernisation and the development of modern native engineering. Unfortunately, there are no creditworthy entities that are interested in such modernisation. The

³⁷² Larina, N.I. State Regulation of Regional Development: the World, Russia, Siberia. IEIE, Novosibirsk, 2005.

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 financial resources are concentrated in the hands of raw companies that do not need this modernisation 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 creation of the fiscal system of the state is concerned, broadly speaking, there are two main approaches based on two different principles – the principle of centralisation and that of decentralisation. A centralised 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 decentralised 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 an underdeveloped state uses only one approach in its pure form – a completely centralised or a fully decentralised system of state budgeting. Generally, a mixed system combining both principles in various proportions is used. For instance, the U.S. budget system is largely decentralised. 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 the implementation of municipality social projects.

In Russia a primarily decentralised approach is absolutely unacceptable due to the following reasons. Firstly, the excessive differentiation of the regions in terms of socio-economic development and the concentration of wealth in few well-known places means that the use of such a model will only lead to further widening 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 fulfil the role that they play in the Western countries. This is because 1) there are often no properly registered real estate units for taxation and 2) the unwillingness of the citizens themselves to put their own property rights in order, since this requires time and money, which may exceed the costs of the property.

The use of a mainly centralised approach actually contradicts the principles of the democratic state, the main feature of which is the active participation of the citizens in the management of the 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 the 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 companyly stands on its feet in one second may turn into a backward one, although nothing changed 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 from Moscow to the Republic of Kalmykia and paid 2.3 billion rubles to the Republican budget. You can 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 large 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 from them are much bigger than those of the other subjects of the Federation, where the city authorities have the ability to pay extra to pensioners, teachers, and above all - to the judges. It may be that some other centres of the subjects of the 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.

The current practice of local budget creation 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 emergency needs. Bodies of local self-governance have to carry out a selective expenditure financial policy. Under these circumstances, the very opportunity for carrying out a responsible fiscal policy, improving the quality of services, implementing effective cost control and attracting investment for the development of the municipalities is lost. It is not a coincidence that when speaking about local self-governance, as a rule, only the powers of local authorities are meant and almost nothing is said about its liability to the population. But under circumstances where almost all municipal units are subsidised, local authorities are primarily dependent on the superior authorities, rather than on local communities.

The fiscal system in its current state is, no doubt, in need of serious changes, and those changes should be result-oriented and capable of solving 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 as to exclude the withdrawal of excessive taxes, because 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 the 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-governance interest in 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 consider 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's 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 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 that at present there is no economic justice to make them.

At the same time, it would be justifiable to transfer individual income tax predominantly to the budget of the territory where a person lives. The point is that currently there is a considerable labour migration, especially between the major centres of the subjects of the 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 labour quality and that of the 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 the creation of the financial base for their maintenance and development.

For a long time vain discussions concerning a more objective assessment of such taxes as those on land, property and luxury have been conducted. Those who are interested in preserving the existing status quo, and are taking decisions, are trying to convince the public that the revision of taxes won't yield any tangible results. 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 the socio-economic development of the country, regions and municipalities, it is necessary to improve the entire management system and not only the part that relates to fiscal relations³⁷³. 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.

2.4.1. Regional production system driven by innovation-based development: the case of Siberia, Russia.

Siberia is a vast region of Russia which is located to the east of the Urals. At the present time the Siberian Federal District (SFD) includes 12 regions of the Russian Federation. Its territory makes up 30% of Russia's territory, its population – 20 million people. Russia's main natural resources are concentrated on the territory of Siberia such as: ferrous and non-ferrous materials, oil, gas, coal, timber, gold and diamonds. Its gross regional product makes up 11% of Russia's GDP. Minerals and metals which are mainly produced behind the Urals make up over ¾ of the Russian export.

However, natural resources are losing their role of the main competitiveness factor in the contemporary world. The ability to create knowledge and to transform new knowledge and technologies into products and services for the national and global markets is becoming the main competitive advantage in the knowledge-based economy.

Recently, considerable efforts have been made to establish the Russian innovation system at national as well as at regional levels. These efforts were mainly made by the top i.e. by the state. At the same time while the achieved results don't meet the expectations in full, the system problems still remain. Moreover our situation became worse from the point of view of the Russian innovation sphere of global competitiveness. Some evaluations of Russia's situation given by the international community can be found below.

³⁷³ Marshalova A.S., Novoselov, A.S.. Methodological Issues: Creation of a New System of Regional Government." Regional Research of Russia", 2013, Vol.3. - No.1, pp.83-89.

Table 2.2. Russia's position in international ratings

	2008	2012
The Global Competitiveness Index	51	67
The Global Innovation Index	54	51
The Human Development Index	73	55

We can note that our position in this rating is far below that of the leaders (more than 140 countries have been ranked), and the development is rather slow and uncertain.

The global experience shows that the innovation development is determined by the interaction of institutions, organisations and individuals who create knowledge; ensure the implementation of new knowledge in technologies; and use new technologies to manufacture products and services. The character of such interactions, roles and functions of separate participants (the most important of them being the state and the created infrastructure) outline the innovation system, its national, regional and industrial characteristics.

The Local Production System (LPS) concept has strong interrelation with the National Innovation System (NIS) concept. Thus we can study the functioning of national and regional innovation systems as types of LPS focused on innovation development.

In recent years the conception of national and regional innovation systems has been actively developed and studied in many works³⁷⁴ (Lundvall, 1992; Block, Keller, 2008; Cooke, 1992). A range of international centres, in particular SPRU (Great Britain), CIRCLE (Sweden), UMIC (Great Britain), etc. have focused their research on these problems. Among the Russian researchers a great contribution has been made by the works³⁷⁵ of N. Ivanova (2008), L. Gokhberg (2003), I. Dezhina (2011), V. Polterovich (2009), N.Kravchenko & G.Untura (2011), etc.

³⁷⁴ Block F., Keller M. (2008), Where Do Innovations Come From? Transcreations in the U.S. National Innovation System, 1970-2006. The Increation Technology & Innovation Foundation. 2008; Cooke, P. (1992), Regional innovation systems: competitive regulation in the new Europe. *GeoForum*, 23: 365-382.

³⁷⁵ Ivanova N.I. [et al.], (2008), An analysis of innovation policy and the evaluation of its results / *Innovations*, 2008, 7.-P.44-60; Gokhberg L.M. (2003), Russia's national innovation system under the conditions of the "new economy" / *Voprosy ekonomiki*. 2003. No 3; Dezhina I. (2011), Features of the Russian "triple spiral" relations between the state, the science and the business / *Innovations*. -SPb.:JSC Transfer, 2011, No 4.-P.47-55; Polterovich, V.M. (2009), A problem of forming a national innovation system/*Economics and mathematical methods*, No 2,

In the literature on regional innovation systems the main attention is given to the description and analysis of relations between the educational system development, innovation activity and economic results of separate territories. Most works are based on the comparative empirical research of different regions that leads to the creation of general regularities and specific characteristics of regional development. In the work of Doloreux, Parto³⁷⁶ (2000) some examples of such research in Europe and Canada are given. The study of regional innovation systems is often related to success stories of regional clusters or regional chains of innovation companies³⁷⁷ (Asheim, Gertler, 2004).

Another direction of research is focused on the evaluation of the institutional environment influence on the innovation development of territories. The research results are grounds for the development of an innovation policy. (Cooke, Memedovic, 2004; Mani, 2004)³⁷⁸.

Such research, commonly results in the conclusion that for each innovation region there is a specific combination of success factors, institutional characteristics and political initiatives, thus no unified model explaining the success of the innovation system development could be developed.

The scientific and innovation potential of Siberia is represented by a range of world-scale scientific achievements, a well-developed system of education and training and a developed production complex including a knowledge intensive economic sector.

The generation of new knowledge is mostly determined by the academic activity of the research institutes, and the system of secondary and higher education. Currently over 400 organisations are working in the R&D sector of the Siberian Federal District (SFD) and the number of personnel involved comes to over 58 thousand of people.

2009, 3-18; Kravchenko N.A., Untura G.A. (2011), Possibilities and Prospects for Siberia's Innovative Development / Regional Research of Russia. - 2011. - Vol. 1, No. 3. - P. 253-258; etc.

³⁷⁶ Doloreux, D., Parto, S. (2000), Regional Innovation Systems: A Critical Review. Chaire de recherche du Canada en développement regional, Universite du Quebec a Rimouski. http://www.ulb.ac.be/soco/asrdlf/documents/RIS_Doloreux-Parto_000.pdf (Accessed: 1.2. 2013).

³⁷⁷ Asheim, B., Gertler, M.(2004), Understanding regional innovation systems. in Jan Fagerberg, David Mowery and Richard Nelson Handbook of Innovation . Oxford: Oxford University Press, 2004.

³⁷⁸ Cooke, P., Memedovic, O. (2003), Strategies for Regional Innovation Systems: Learning Transfer and Applications/ UNIDO, Strategic Research and Economics Branch. http://www.unido.org/fileadmin/import/11898_June2003_CookePaperRegional_Innovation_Systems.3.pdf (Accessed: 13.6.2013); Mani, S. (2004), Government, innovation and technology policy: An international comparative analysis/ International Journal on Technology and Globalisation, vol. 1, No. 1, pp. 29-44.

Concerning the comparable quantitative indicators of science employment, Siberia as well as Russia have been dropping behind the world leaders regarding quality indices such as: scientists' age structure, scientific effort financing and effectiveness.

The average age of researchers in the SFD is 49 years old and the share of scientists in the age range 50-70 years is over the half of the researchers' total number. At the same time in the USA the share of scientists of this age does not exceed 25%.

Eight Siberian universities are included in the top 500 universities of the world³⁷⁹ but they are ranked in the fourth hundred. 33-40% of the universities and research institutes have access to up-to-date educational and scientific Internet portals.

The Siberian economy is mixed. Its traditional industries are based on 3-4 technological waves. Some enterprises in the processing industry use the equipment and technologies of 5-6 waves, for example, laser equipment and technologies, accelerating equipment, electron-beam and photochemical technologies; biotechnologies; catalytic technologies; coal deep-processing technologies and coal chemistry; increation technologies, etc.

The knowledge intensive sector of the Siberian economy is represented by the aerospace industry; production of fuel and power engineering equipment; production of communication facilities including space and telecommunications; instrument engineering; production of medical equipment and others.

The share of high-tech mechanical engineering (production of machines and equipment, production of electrical equipment, electronic and optical equipment, production of transport vehicles and equipment) in the structure of the Siberia's processing industries is small – 11.4% (in the Russian Federation - 20.2%). In the total industry structure the share of high-tech industries is 8% in Siberia (in the Russian Federation – 13%, in the European Union – 16%). For the last 15 years the gap between the developed countries in the field of the high-tech industries has increased.

At present Siberia's traditional industries are not characterised by high innovation activity due to the special features of the industry structure as well as a result of many other factors.

Innovations in the real sector of the Siberian economy (innovation activity of enterprises, implementation of new products and number of advanced manufacturing technologies in use, exchange of technologies) are developing more slowly than in the Russian Federation. In the SFD the foreign trade turnover resulted from ex-

³⁷⁹ In total 65 Russian universities were included in the Global University Ranking, 3 of them are ranked in the top 300 and the others – in the top 400.

porting and importing technologies and engineering services is 6.6% of the domestic indicator. Siberia, as well as Russia, is a net importer of technologies.

The incomparable lag of the Russian (and Siberian) enterprises from the foreign ones judging by the innovation activity indicator can be explained by the fact that in the developed regions of the world there is a developed multi-component innovation system. In Siberia this system is still being formed.

The business sector demonstrates an extremely low demand for innovations. The existing competition is increasing based on other other factors. The low demand for innovations is caused by many problems, for example: inertia of the industry structure with the predominance of medium and low-tech industries; engineering backwardness and out-of-date production facilities; lack of qualified personnel; insufficient development of market institutions and infrastructure etc. We can assert that innovations are not a competitive advantage under the conditions of the deformed competition, when the short-term frame of corporate development is dominating. In fact the state is almost the only source of internal demand either directly or by means of the state economic sector. At present the demand for innovations is stimulated by the government first of all by establishing state corporations and constraining large companies of the state sector.

The problems in the innovation sphere are well known, they are deeply rooted and they affect the economy as a whole. The functional capabilities of the current innovation system turned out to be limited: there is growth (although not always effective) in spheres where the use of state resources and capabilities is possible. According to the domestic statistical data (Table 2.3.) while science and innovation costs are obviously going up, the effectiveness of these costs is going down³⁸⁰. Although the number of patents and the number of newly created advanced technologies have considerably increased, the share of companies implementing innovations and the share of innovation products to be implemented remain almost at the same level.

Statistical data³⁸¹ (Indicators, 2012; Regions of Russia, 2012) demonstrate that there are no significant movements in the innovation development in Siberia and

³⁸⁰ According to publications in the leading scientific journals Russia went down in the ranking of countries from the 8th position (1997) to the 14th position (2008); for the same period China went up from the 10th position to the 2nd. In 2008 Russia's share in world scientific publications made up 2.48% (27,5 thousand publications), but in 1997 it made up 3.77% with 27,9 thousand publications, and at the same time the USA had 29.4%, China — 9.69%. The export of domestic technologies in 2008 made 0.833 bln \$, and in the USA (1st position) it made 91.9 bln \$.

³⁸¹ Indicators of science and innovations – 2012: stat. collection of works. M., GU-VShE, 2012; Regions of Russia. Social and Economic Indicators - 2012. [in Russian]. URL:http://www.gks.ru/bgd/regl/b12_14p/Main.htm (Accessed: 25.6.2013).

in Russia as a whole. Although there are increasing total volumes of expenditures for R&D, the intensity is decreasing. The number of personnel involved in R&D is also decreasing which creates important threats for the perspectives of long-term development. The results of the innovative activities of the corporate sector are not very optimistic.

The leading European countries demonstrate opposite dynamics. The intensity of innovation costs (% GDP) in Russia consists of 1.09%, As to some other countries we have the following data: Japan in 2008 – 3.45%; European leading countries such as Finland – 3.87%, Sweden – 3.42%, Denmark – 3.06%.

Compared to the average level of EU countries our enterprises show over five times lag as per the innovation activity level.

There are positive trends in the innovative development in Russia and Siberia but the processes are rather slow.

Table 2.3. Indicators of Russia’s Siberian and European Union innovation development

Indicator	Russia		Siberia		EU-27
	2008	2011	2008	2011	2010
R&D internal costs, % GDP	1.04	1.09	n/a	n/a	2
Number of personnel involved in R&D, thousand people	761	735	53.9	52.7	1560
Number of granted patents, thousand pcs.	31.5	30.9	2.1	1.8	54.4
The share of organisations implementing engineering innovations in total number of organisations (industry), %	9.6	10.4	7.7	8.8	52.9
The share of innovation products, works, services in total volume of products (industry), %	5.1	6.1	2.1	2.2	Germany -14.1; Finland – 9.3

Compared to the average level of EU countries our enterprises show over five times lag as per the innovation activity level.

There are positive trends in the innovative development in Russia and Siberia but the processes are rather slow.

Priority innovation projects of Siberia’s development

During the last few years significant investments were put into the development of a new innovative sector of the Siberian economy. Those projects were supported by different state-owned funds among which the “ROSNANO” JSC is the larg-

est³⁸². The increase about the approved investment projects dealing with the production of innovative products and services is summarised in Table 2.4.

By the end of 2010 seven projects have been supported on the territory of Siberia (Novosibirsk -3, Tomsk - 1, Krasnoyarsk – 1 and in Irkutsk region - 1).

Table 2.4. ROSNANO projects in the Siberian Federal District

Project	Investments, bln rubles	Implementation period	Actual status in 2013
1. Expansion of nanoink production for digital ink-jet printing and production of UV-LED-technology based printers	1.36	2010	Production started
2. Production of oxide ceramic coatings	0.355	2010	Production started
3. Domestic production of state-of-the-art lithium-ion batteries	13.8	2010-2015	Production started
4. Nanostructured non-metallic coatings	2.44	2011	Production started
5. Large-scale production of polysilicon and monosilane	29.1	2009 - 2013	Postponement
6. Collagen-chitosan nanocomplexes	0.76	2010 - 2011	Postponement
7. The infrastructure of technopark "Academgorodok" development	11.7	2008 - 2014	In progress according to the plan

The implementation of these projects has met a number of problems such as:

- insufficient consideration of the innovation risks related to the immaturity of the innovative technologies and the uncertainty of the market research for new products;
- poor study of alternative innovative projects in the absence or underdevelopment of the domestic market for innovations;
- low willingness of private investors to take high risks associated with innovative projects in underdeveloped hedging and insurance mechanisms;
- lack of flexibility of tools and mechanisms of state support and in the provision of long-term government support, which leads to delays in projects' implementation.

Noteworthy is the fact that the timing of the implementation of many projects was delayed for several years. During this time, the market conditions, the level of market competition and global prices for similar innovative products have radically changed.

³⁸² ROSNANO projects. <http://www.rusnano.com/Section.aspx/Show/25811> (Accessed: 13.6. 2013).

The Siberian large-scale business is generally oriented to the purchase of import equipment and at the same time R&D knowledge is in a great demand abroad. It means that foreign companies in fact commercialise the scientific achievements and transform them into a product which is in demand on the market, thus getting the most of the added value. So the capitalisation of the highly intellectual resources is performed outside of Siberia and Russia and the considerable means of the business sector are eliminated from reproduction processes of the domestic R&D sector.

The above-listed projects supported by JSC ROSNANO already being implemented in Siberia, are to be considered as the beginning of the future Siberian innovation production. It is necessary to emphasise that the development of the Siberian innovation sphere can not only be based on large projects. Institutional changes aimed at the increase of social and business activity, motivation for competition, and reduction of transactional costs are also required.

One of the most significant factors located mainly within the managerial influence of regional authorities is the forming of the innovation related to: favourable institutional environment, support for the development of business initiatives and small businesses, search for investors, lobbying for the interests of the Siberian territories.

There are no simple recipes for competitiveness. Creating a “knowledge economy” is not only a goal but a means to increase the level and quality of life and it is therefore necessary not only to supplement the targeted parameters by indicators that reflect changes in the system of norms and values, culture, mentality and traditions of the Russian population, but also to develop special programmes to achieve the objectives of social innovation.

2.5. Cooperation of companies within LPS and its influence on innovative behaviour

Each company in its activities inevitably cooperates with many economic actors. The forms and types of such cooperation depend on technology, market structure, external environment and many other factors. Individual companies get definite serious advantages through integration with their competitors and partners. Cooperation covers vertical and horizontal links and could be arranged in different ways. These vary from strong hierarchical to flexible market schemes. An attempt to analyse such relations is presented in the paper. Research is based on the postulates of institutional economics. Company, market and hybrid forms are understood as basic types of economic organisation of cooperation between separate units. The beginning of the paper is devoted to the theoretical background of the inter-company cooperation. The main attention is paid to the business associa-

tions. The empirical part is based on a special survey which was developed with the participation of Siberian innovative companies. The total amount of responding companies is 65. A general assessment of the inter-company cooperation effectiveness and business association membership has been carried out. Some characteristics of companies' behaviour were compared with their attitude to cooperation and participation in the associations.

2.5.1. Approaches to inter-company networks studies

Network types of cooperation between market agents play an important role in the modern economy of developed countries. The theoretical background of companies' networks is related to basics of the new institutional economics. Classical analysis should start from O. Williamson's (Williamson, 1981) approach³⁸³, presenting companies and markets as alternative forms of economic organisation. The company here deals with a hierarchy and strict mechanisms of relations' regulation, while the market is associated with free flexible schemes. At the same time Williamson didn't limit his explanations to just two-dimension system. He also suggested various hybrid variants of organisations. Differences between market, hybrid and hierarchy are presented by the types of contracts which regulate the economic activities of the main actors. The design of a given contract, its duration, number of details, and level of internalisation of governance mechanisms depend on companies' characteristics, their activities and assets involved in contracting. The level of transaction costs is also taken into account while making decisions on the form of organisation. Assets' specificity, bounded rationality and post-contract opportunism play an important role in this process. Inter-company network cooperation could be understood as an example of hybrid-type relations. These are based on long-term detailed contracts and therefore in some points act as the hierarchy. On the other hand it is not correct to interpret the hybrid schemes as company analogues. Regulation and management inside the companies differ from the regulation between independent actors. Companies which join hybrid forms in general remain separate and independent.

Inter-company networks appear as a result of integration processes which take place at many industrial markets. M. Shersheva shows that networks have different genesis (Shersheva, 2006)³⁸⁴. Elements of the hierarchy could be introduced to market type organisation. Some transactions previously regulated only by the market could be managed by means of the detailed contract. Special instruments are used in order to prevent opportunistic behaviour and to adapt to the changing

³⁸³ Williamson O., 1981. The Modern Corporation: Origins, Evolution, Attributes // Journal of Economic Literature. Vol.19. Nr.4. P.1538.

³⁸⁴ Sheresheva M. Inter-organisational networks in the system of forms of modern industrial markets functioning, Dissertation paper, HSE, Moscow, 2006.

external environment. A process of so called “quasi internalisation” takes place in such cases.

On the other side the company in some cases reacts to external challenges by the “externalisation” of several functions. A hybrid-type of cooperation is the result of this process. Outsourcing and restructuring could be mentioned as examples. Here we formally observe disintegration but in fact it is a new type of integration.

The genesis and background of the network influence its creation and operation.

Types of inter-company interaction

Network cooperation is based on the neoclassical contacts which are rather flexible and give definite freedom to the participants. Coordination and cooperation are arranged in a definite structured way but potential conflicts are still possible.

Any company joins several networks simultaneously. These relations gain special importance under an unstable economy. The probability of opportunistic behaviour naturally increases under crisis when established stable relations are destroyed. Companies try to achieve two goals: to save existing relations and to create new chains. This has special relevance to the suppliers. Y. Popova explained that the experience of Russian companies in the 2008 crisis proved this tendency³⁸⁵. (Popova, 2010). The Russian economy provides an interesting practice of network cooperation. Pure market forms of economic organisation couldn't develop successfully within the Russian environment. Most companies use long-term contracts with their main partners. A number of empirical works aimed at studying such an experience that appeared in recent years. Most of them deal with the nature of the network cooperation and its results. Y. Popova describes the results of a large scale survey and shows that most companies incur additional financial costs when they build networks (Popova, 2010). Usually these costs are related to financial privileges which are granted to the network partners. Major instruments used in practice include discounts, loans, and changes in delivery schedule. Investments in partners' business are very seldom used. Many companies consider that partnership relations help to consolidate resources and increase competitive advantages. It should be noted that in most cases cooperation develops vertically. Most market agents don't trust horizontal partnerships. Very often existing networks help to find new partners.

It should be pointed out that empirical data reflect the controversial nature of network cooperation. On the one hand they certainly provide great assistance to companies and help to solve many problems. On the other hand they limit compe-

³⁸⁵ Popova Y., 2010. Network relations on industrial markets: results of Russian companies review St. Petersburg State University Bulletin: Seria 8 –, volume 1, pp. 139-165.

tion by limiting the entrance of new companies, thus acting as barriers to entry. They also act as a platform for new conflicts and contradictions between existing members.

Network cooperation is very important for the innovative companies. Dissemination of innovation, exchange of resources, feedback, and innovative projects are implemented within the networks. Their high flexibility and adaptability are very important for complex products promoted under the high uncertainty of the external environment³⁸⁶ (Popova, 2010). It is important to note that gaps between different stages of the innovative process could be decreased within the networks.

There are several types of inter-company cooperation. One of the initial and “soft” stages of integration is presented by the business associations (BA). A brief analysis of BAs and their role in the Russian economy is presented below.

Business associations as a form of cooperation, their role in the Russian Economy

BAs are non-profit organisations which operate on voluntarily basis and bring together the efforts of different entities and entrepreneurs. The general aim of a BA is to coordinate the entrepreneurial activities and to represent joint interests. BAs pay much attention to the relations with state authorities.

Associations of economic agents could be found in any economy. A. Roy (2005) in his paper³⁸⁷ gives the shortest definition for association. He defines it as aggregation of separate individuals or organisations; such aggregation has an official name and its members don't get any direct financial compensation for participation. This explanation is very broad; it is possible to find associations almost everywhere. Even religious units could be understood as associations. We consider only those associations which are founded by business entities and entrepreneurs. Only such associations could be called business associations.

A BA as any integration deals with different groups' interests. In each case the members get definite advantages compared with the autonomous operation. On the other side coordination is related to explicit and hidden threats. There is always a possibility for conflicts and violations. The role and place of BAs together with their ability to combine the interests of different partners are determined by the general level of economic development and business environment.

³⁸⁶ Ibid.

³⁸⁷ Roy Abhijit Marketing to and Through Associations: A Descriptive Analysis and Research Issues JOURNAL OF BUSINESS-TO-BUSINESS MARKETING Paul D. Berger 2005 <http://www.HaworthPress.com>.

Traxler (2010) proved that BAs changed greatly under the globalisation processes³⁸⁸. Based on data from developed countries he showed that big companies are interested in not only BA membership but also in attracting small companies. He suggested that “managing ability” is the most important factor of a BA.

There are different approaches to assess the role of BAs in the economic development of a given market and national economy³⁸⁹ (Russian corporation, 2009). Some authors prove that BAs have a rather negative influence on the economic development. According to several approaches their role decreases with market development and at some stage they may disappear. Only in developing economies BAs are effective and have real influence on companies’ performance and decisions. We consider that this point of view is debatable. Certainly the role of BAs and their influence are related to the general level of economic development and common norms of business. In developing countries associations often execute important function related to the implementation of government projects and programmes. The Brazilian association of agricultural producers is a good illustration of such practice. This association cooperates effectively with the state; it has some non-financial privileges and obligations to involve all producers. Effective exchange relations are developed within the association. However in well developed countries the associations also play an important role. The experience of Germany (IT association and others) provides a good example. Moreover BAs are important parts of civil society, their existence, role and character indicate the general level of democracy and economic development.

A. Zudin proves that the associations perform two important functions³⁹⁰ (Zudin, 2009):

- *support of the market* - they help to protect ownership rights and promote the interests of different participants; in the developing countries the associations could protect partly from “state failures”, improve the quality of state governance and provide reliable insurance for property rights.
- *supplement to the market* - they have some influence on companies members; this function is actual for both developed and developing markets.

³⁸⁸ Traxler Franz The long-term development of organised business and its implications for corporatism: A cross-national comparison of membership, activities and governing capacities of business interest associations, 1980–2003ejpr European Journal of Political Research 49: 151–173, 2010.

³⁸⁹ Russian corporation: company organisation, external relationships and prospects for development, 2009. High school of economics, Moscow.

³⁹⁰ Zudin A., 2009. Associations – Business - State «Classical and Modern forms of relationships - High school of economics, Moscow WP1.

Business associations play an important institutional role. They are part of the general management system, provide market coordination, different intermediate and inereational services to their members etc.

The institutional potential of the associations in any economy depends on several basic factors. They include:

- The density of members (high density means that most companies are involved in the association; its efficiency is likely to be high in such case);
- The range of selected instruments and motivations in use (they could have financial and non-financial form);
- The system of decision making (effectively developed structure minimises the possibility of potential conflicts).

Several main types of BAs are determined (Zudin, 2009):

1. Pure business associations;
2. Unions of employers (they deal mainly with labour relations);
3. Trade or trade-industrial chambers which present the interests of the entrepreneurs from a given region.

The third type is characterised by the heterogeneity of its members which causes difficulties in the development of a common position and limits the variety of services. BAs of this type implement different tasks defined by governments and state authorities. The first two types could be arranged at national or industry level. They could have a mixed inter-industry and inter-regional nature. Their main function is to regulate horizontal and vertical competition. They could represent the interests of and provide selected services to their members. The homogeneous type of membership makes it possible to find coherent positions.

Examples of each type of BAs can be found in any country. Their forms depend on historical, cultural, geographical, economic and other conditions. In developed countries BAs were formed during a long period and passed several stages of development. BAs also play an important role in the structure of Russian industrial markets.

As already mentioned, the tendency for cooperation of business entities could be observed not only in market economies. Unions of entrepreneurs could be found within the administrative system. The Chamber of Commerce and Industry presents a good example of such practice. Such associations didn't play an important role in the economy in Soviet times; they couldn't provide effective cooperation between businesses and government. However, their existence formed favourable conditions for modern forms of entrepreneurial unions. Various associations, un-

ions and agglomerations appeared during the transition period. Their creation was initiated either by state authorities or by business. Empirical data show that most of modern associations in Russia appeared after the 1998 crisis³⁹¹ (Russian corporation, 2009). The objective necessity of consolidation of separate companies' efforts was realised during this period. Consolidation became possible partly due to the widening of the planning period. There are some empirical data which show the role of BAs and could help to understand motivations and effects of companies' participation in BAs. We would like to pay attention to the results obtained by researchers from the High School of Economics in Moscow (Russian corporation, 2009). Conclusions are based on data collected for more than 1000 Russian manufacturing companies.

In general Russian associations cover rather a small share of companies. Most of them have small management teams; there is no definite relation between the companies' role within the association and the market share. If we compare these characteristics with key BAs success factors which were mentioned above, we can see that there are no grounds for Russian Bas' high effectiveness. Certainly several exceptions could be found. There are selected examples of very efficient BAs. Several types of BAs can now be observed on the Russian markets:

- The "ministry type" unions (Russian Union of Entrepreneurs and Manufacturers, Chamber of Commerce and Industry) - they act as real ministries and operate based on hierarchy and bureaucracy, use classical administrative methods;
- Associations operating as an "attachment" to a ministry - they provide different services for various businesses. They are diversified and have a heterogeneous nature. It is difficult to combine interests of different companies within such associations. The Russian touristic union is good example;
- Self-regulating organisations - they have a high potential for cooperation between business and state. Unfortunately this potential is not used;
- Full industrial agencies - they have a homogeneous character, could mobilize resources and implement collective actions. Usually they cover from 50 to 95% of markets' participants. The Russian brewing association is good example of this type.

We can see that Russian BAs can mainly be referred to BAs of the first and the second type, according to the common classification.

³⁹¹ Russian corporation: company organisation, external relationships and prospects for development, 2009. High school of economics, Moscow.

A number of interesting papers deal with the role of BAs in transition economies. Their results show that in a transition environment BAs act as an institute which substitutes or complements personal relations. Companies use membership as an instrument of effective lobbying. In this case BAs help corruption development³⁹² (Zudin, 2009).

Results of empirical research on the manufacturing companies' performance within the period 2002 -2009 show that in general the number of companies which take part in the activities of different associations increases. BAs membership has a positive correlation with active market strategy and re-structuring. In most cases dynamically developing companies with a strong market position are interested in BAs. Successful companies usually have membership in BAs. Many exporting companies join BAs. There is a positive correlation between BAs membership and innovative activities.

More than a half of the medium size companies and large companies are members of different associations. The level of small businesses consolidation is lower. There are regional differences in the attitude to BAs. In metropolitan areas and big cities companies are more active. Companies operating at local markets are less interested in joining BAs.

The relationship between the level of market competition and the tendency to join BAs is not simple. It was found that competition between Russian companies and companies from CIS, as well as between foreign companies operating in Russia doesn't influence the membership in BAs. However, companies competing with companies from Eastern Europe, Baltic countries and China show a tendency to join BAs.

A BA's membership gives definite advantages. Most of the companies consider that these advantages include the possibility to interact with government, influence the legislation improvement, obtain information about future decisions, and improve adapting capacity. Various channels of dialogue with government are used. The channels include expert and consulting counsels with representatives of regional and municipal authorities. It is important that participation in BAs provides sustainable contacts with government structures, gives opportunities to obtain financial and non-financial privileges and use administrative resources.

It is interesting to note that more and more companies consider that BA's membership is valuable and useful. In 2002 most companies indicated that there is no effect of BAs. Now the situation has changed. A positive assessment of the partic-

³⁹² Zudin A., 2009. Associations – Business - State «Classical and Modern forms of relationships - High school of economics, Moscow WP1.

ipation in BAs is common. Companies consider that participation has a special value when cooperation with government exists.

The case of each BA is very specific. Its history greatly influences its activities. However, in some cases BAs go through great changes. Associations initially created by state administrations are usually transformed later. Associations created by “red directors” correct their priorities later. Empirical data show that associations established by businesses are more effective. They have strong reputation.

E. Yasin (Companies and markets, 2010) considers that industrial BAs attract active companies and could represent the interests of the business³⁹³. Such structures under a favourable environment could become real instruments of quality standards introduction, companies at new markets promotion, personal trainings etc. Usually they involve market leaders but nevertheless they also provide support to other companies.

By summing up the description of the current Russian situation it is possible to state that BAs in general play important role in the Russian economy and have a high potential for development. Heated discussions on the role and perspectives of self-regulating organisations take place in the academic and expert community of Russia. We consider that BAs’ perspectives are not so clear. In general business companies don’t agree that such organisations are necessary and effective. Negative opinions are very common. The results of a special survey are presented on special site (Self-regulated organisations). They show that 76.5% of respondents consider that the advantages deal only with state authorities. Producers and consumers don’t feel any positive influence from such organisations.

Examples of each type of BAs can be found in any country. Their forms depend on historical, cultural, geographical, economic and other conditions. In developed countries BAs were formed during the long term and passed several stages of development. Each industry and market deals with the specific experience of BAs development.

We study the inter-company cooperation in general and the valuation of BAs by companies, using empirical data from Siberian innovative companies. Some results are presented below.

2.5.2. Inter-company cooperation among innovation-based companies in Siberia

The main idea of research on small innovative business development in Siberia is described in a joint paper of researchers from the Institute of Economics and In-

³⁹³ Companies and markets in 2005-2009: results of two rounds of survey of Russian manufacturing industry, 2010. Paper at XI International conference XI at HSE, Moscow.

dustrial Engineering in Novosibirsk³⁹⁴ (Kravchenko, Kuznetsova, Yusupova, 2009). A special survey was developed and used. The total amount of responding companies is 65. Empirical results are shown further. Part of the questionnaire deals with possible measures for innovative companies' support. A number of instruments were suggested, top managers or owners from small innovative companies were asked to estimate how important each instrument is. Two stages of company's life cycle were determined: the stage of creation and the stage of development. Initially the sample was divided into two groups:

Group 1 – “leaders” – companies working at national and international level and producing products that are new for Russia or even for the whole world;

Group 2 – all the other companies.

The importance of each measure was supposed to be estimated for each stage. BAs membership was among such measures of support. The scale from 0 to 10 was used for the estimation of BAs' importance. It turned out that company leaders gave higher general average scores. It is necessary to point out that the difference in scores between leaders and all other companies appeared only at the stage of creation. At the stage of development scores of leaders and other companies are the same. All companies consider that the importance of a BA increases at the stage of development, compared to the stage of creation.

The general results of the estimation are presented in Table 2.5. below.

Table 2.5. Average scores of BA importance

Companies	General average	Stage of creation	Stage of development
All sample	4,60	4,22	4,96
Group 1	4,89	4,91	4,96
Group 2	4,33	3,62	4,96

Source: author's calculations

The division between leaders and others was not taken into account in the next stages of research. All companies in the sample were analysed together.

The survey includes many characteristics of the companies. We selected several factors and looked at their influence on the estimation of the role of BAs. These selected factors include: year of company's foundation; market; novelty of product. Relationships found are described below.

³⁹⁴ Kravchenko N., Kuznetsova S., Yusupova A., 2009. Barriers of development and success factors of small innovative business: empirical research – materials of the conference, Novosibirsk, Institute of Economics and IE

Year of foundation

Three groups of companies were formed from the whole sample according to the period of company's foundation.

- 1 – companies founded before the crisis of 1998;
- 2 – companies founded during the crisis (1998 till 2000);
- 3 – companies founded after the crisis (2000 – to now);

Estimations given by different groups reflect the influence of external environment.

We discovered that higher scores were given by companies founded during the unstable crisis time. This relation refers to both stages of company's life. Such a result reflects the potential of BAs, their ability to solve problems and to resist to the challenges of external instability. It turned out that companies which were created during successful years gave higher scores for the importance of BAs at the stage of development. We can propose that coordination and integration with other companies at the market becomes more important as a company grows.

Product novelty

The level of product and technology novelty was studied in the next step. We should note that this factor was taken into account for the determination of the leaders.

For the novelty we used a 5- level scale

- 1- traditional product;
- 2- new for the company;
- 3- new for the local market;
- 4- new for the Russian market;
- 5- new for the global market.

Average scores were calculated for companies producing products of each type of novelty. If a company produced products of several levels the biggest index was used. Such scores were calculated for 5 groups of companies.

The influence here is not very transparent. We discovered that informal cooperation and inancial support provided by BAs is more important for companies dealing with traditional products and products new for local and national markets. Companies oriented to global markets also consider BAs as rather effective support instrument. Average scores here are lower for the third and the fourth levels of novelty. There are some differences between life cycle stages. The importance of BAs increases at the stage of development for companies with the third and the fourth levels.

Scale of market

The scale of the market where a company operates was examined during the next stage.

A 5-level scale for market size was used.

- 1 – Novosibirsk oblast;
- 2 – Siberia;
- 3 – Russia;
- 4 – CIS;
- 5 – The whole world.

Again average scores were calculated for companies oriented to each type of market. If a company operated at several levels the biggest index was used. Similar to the previous step scores were calculated for 5 groups of companies.

The results show that companies working in the Siberian market consider that associations provide important support at the stage of development. In general the wider the market is the higher is the average score. The results of our analysis are presented in more details in our paper³⁹⁵.

We also tried to study several other types of cooperation. Besides business association membership we distinguished several other measures of innovative companies support. Almost all of them reflect to some extent the cooperation with other agents. Preliminary results are presented below. They show the company's attitude to two instruments of support: "cooperation with large companies"; "cooperation with R&D institutions and universities".

Another question of our survey was related to companies' success analysis. Respondents were asked to evaluate different factors according to their influence on the company's success. We have chosen one of them – "cooperation with other enterprises and institutions". A scale from 0 to 5 was suggested for the evaluation of these factors, so the maximum score could be 5.

Accordingly, we have chosen three characteristics which directly reflect the partnership relations between innovative companies and large enterprises, and research institutions. Table 2.6. below contains information about the average scores obtained.

As we can observe, the innovative companies in general do not give maximum scores to the analyzed factors. Markets leaders consider cooperation to be more important than other companies do. All companies gave higher scores for all factors at the stage of development, compared to the stage of creation. It is possible to suggest that partnership relations play an important role in companies' development.

The answers were compared to such characteristic as product novelty. As mentioned earlier we defined 5 possible levels of novelty.

³⁹⁵ Yusupova A., 2011. The importance of innovative companies associations: The case of Siberia // A Global Economy / M.P. van der Hoek. - Papendrecht : Forum for Economists Int., - P. 102-115.

Table 2.6. Average scores of factors' importance

Companies	Stages of life cycle	Factors under analysis		
		Factor 1	Factor 2	Factor 3
All sample	Creation	1,86	1,87	2,84
	Development	2,56	2,28	3,04
Group 1 ("leaders")	Creation	2,21	2,35	3,09
	Development	2,71	2,61	3,36
Group 2 ("others")	Creation	1,52	1,42	2,62
	Development	2,42	1,96	2,74

Factor 1 (support measure) – "cooperation with large companies"

Factor 2 (support measure) – "cooperation with R&D institutions and universities"

Factor 3 (success factor) – "cooperation with other enterprises and institutions"

Source: author's calculations

We suggested that the higher the level of product novelty is, the more innovative is the company. So novelty reflects the innovative activity. Our aim was to find out relations between these characteristic and the acceptance of the high importance of partnership relations. A correlation coefficient was chosen as indicator of the relationship. The results are presented in Table 2.7 below. Coefficients were estimated for both groups of companies (leaders and others) and for both stages of the life cycle.

Table 2.7. Coefficients of correlation between product novelty level and scores of analysing factors

Companies	Factors	Stages of life cycle	
		Creation	Development
All sample	Factor 1	0,14	0,10
	Factor 2	0,31	0,19
	Factor 3	0,18	0,21
Group 1 ("leaders")	Factor 1	-0,32	-0,32
	Factor 2	-0,23	-0,53
	Factor 3	-0,05	0,17
Group 2 ("others")	Factor 1	0,13	0,22
	Factor 2	0,38	0,27
	Factor 3	0,21	0,13

Factor 1 (support measure) – "cooperation with large companies"

Factor 2 (support measure) – "cooperation with R&D institutions and universities"

Factor 3 (success factor) - "cooperation with other enterprises and institutions"

Source: author's calculations

Each figure in the table shows the coefficient of correlation between the novelty level and the average score of the relevant factor. If a coefficient is less than 0.25 we consider that there is no link between the characteristics analyzed. If a coefficient is more than 0.25 and less than 0.35 we consider that the link is weak. If a coefficient is more than 0.35 we can say that the characteristics are correlated.

Results for the whole sample differ from those obtained for separate groups of companies. Thus, if we look at the whole sample we can only point out the existence of weak positive correlation between the novelty level and the scores given to cooperation with R&D institutions and universities. All other coefficients turned out to be insignificant. We can suggest that there are no other relations between the level of company's innovative activities and its attitude to the importance of the analyzed factors.

More interesting interpretations could be developed for separate groups of companies. If we take group 1 – market leaders we can find that 3 coefficients (out of 6) are significant. The correlation in all cases is negative. The higher the level of novelty is the less is the importance of the selected factors. The strongest correlation was found for "cooperation with R&D institutions and universities" at the stage of the company's development. This could be explained in the following way: leaders do not show a tendency to cooperate with official R&D institutions under the current situation. Two other significant figures reflect a weak correlation with the cooperation with large companies both at the stage of creation and at the stage of development.

Though our results reveal that market leaders give relevantly high scores to assistance (increational and other) provided by business associations, at the same time they demonstrate a tendency to separate.

Two coefficients turned to be significant for the other group of companies which are not leaders. We could suggest that positive correlation exists between the novelty level and companies' cooperation with R&D institutions and universities. This correlation is stronger at the stage of creation, compared to the stage of development. So relations with research institutes positively influence the innovative behaviour of the companies which are not market leaders.

In general our results show that the innovative companies understand the importance of cooperation and partnership relations ambiguously. The influence of cooperation on the innovative activities of small companies and medium size companies is also ambiguous.

Concluding remarks

Our research is not yet finished. It is extremely difficult to obtain relevant data. Nevertheless it is possible to state now that inter-company cooperation really

plays an important role in the creation of the market infrastructure in Russia. Various instruments, forms and methods are used by companies in order to build such cooperation. Business associations provide a good opportunity for expressing companies' interests. They help to build civil society. Our results show that in general innovative companies consider that the role of BAs is rather significant. They give high estimations to increational support which is provided by business associations. We have found that the companies which operate in wide markets and produce highly innovative products (the market leaders) give higher estimations to BAs than the other companies.

The results of our research show that partnership and cooperation with large enterprises and research institutions play relatively significant role in innovative SMEs development, but at the same time there is no well defined correlation between the company's attitude to cooperation and its innovative behaviour.

2.6. Technopoles: Analysis of the international experience and lessons or Russia

In recent years in the world of regional development much attention has been paid to the functioning of the local production systems (LPS). This was particularly relevant in the context of the global economic crisis, when the survival of the regions at different levels of development depends on the capabilities of their self-development and good governance.

Local production systems are widely understood – these could be regions of different types and rank, including municipalities, industrial centres and industrial nodes, territorial-production clusters, free economic zones, a variety of innovative combinations, regions of new development, etc³⁹⁶. In spite of this broad definition of LPS they should have a number of essential characteristics, such as: economic viability of the territory (especially the presence of economic potential sufficient for self-development), manageability and institutional factors (presence of institutional mechanisms for decision-making in the area, thus providing, in particular, training of qualified personnel, tax, financial, organisational and other support for development, conducting research and innovation).

Some forms of LPS strengthen the innovations and the investment sector of the regional economy, thus providing greater competitiveness of its industries. Among these LPSs are primarily technoparks and technopolises.

³⁹⁶ 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), 2003. – P. 1443–1462.

In Russia, which recognised the need to build an innovative economy, there is much interest in foreign experiences on the implementation of technoparks and technopolises, the main purpose of which, in our opinion, is the foreknowledge and the advancement of various innovations.

High-technology branches have a high rate of scientific and technical progress. Therefore, manufacturers have high interest in scientific knowledge; they are interested in contacts with science. In addition, high technologies do not constitute separate and isolated clusters. In many cases they are inter-connected and enrich each other. Complex usage of high technologies needs fundamental research, which open new fields of application of new principles and ideas.

Over the last 25-30 years, developed countries have gained considerable experience in innovation. Various forms of scientific development introduction in production have been observed. Among them of particular interest is the production organisation in industrial parks and technopolises. A technopark is an agglomeration of high-tech companies, grouped around a large university, institute and laboratory. The main objective of the park is to reduce the time of introduction of scientific ideas into practice. Parks have special infrastructure (buildings, constructions, telecommunications), which along with certain tax benefits is available to new companies. Technopolis are scientific-industrial towns, placed near a major industrial centre, based on a tight integration of the scientific base and a diversified production structure. The idea of building technopolises originated from Japan in the early 80s.

The first university technology park appeared in 1947 in the United States in Boston. The first ten years of its experience were very successful, and as of the '70s of the twentieth century the number of technoparks increased significantly.

Despite the significant differences in the economic conditions in different countries, there is one universal cause for organising industrial parks in universities. This reason lies in the fact that in order to guarantee the most favourable conditions for development, the universities create a multi-funding system for their activities. The first principal component of this system is the state (federal) funding for training and research activities. The second component is the completion of the budget by performing university scientific research. The third component is conducting educational activities on a commercial basis (provision of different educational services). The fourth component is the industrial activity of a technical college. The fifth component is related to international relations, funding from international programmes, sponsorship etc³⁹⁷.

³⁹⁷ Belousov A., Vovchenko V. Prospects for the development of the world market of high technologies. // Belarusian Journal of International Law and International Relations. 2002. - № 2.

The "Science Parks" (a form of integration of science and industry) are classified as regional scientific and industrial complexes. Two phases are clearly seen in the development of the "science parks":

- First phase - the 60s of the last century, when the majority of "science parks" appeared in their "homeland" (USA), and when their basic forms appeared in some Western European countries - UK, France and Germany.
- Second phase - the 80s of the last century, when the second generation of "science parks" appeared in the USA and Western Europe. "Science parks" appeared also in countries where they did not exist before (in Japan and other Asian countries). In addition the variety of "parks" replenished with new varieties³⁹⁸.

"Science parks" can be generally divided into three types - American (USA, UK), Japanese, and mixed (France, Germany).

The American model of industrial parks has three types: 1) scientific and technological parks; 2) "research parks", which differ from the first by the fact that their innovations are developed only to the stage of the technical prototype; 3) "incubators" (USA), and innovation centres (in the UK and Western Europe), in which the universities host the start-up companies by providing them (against modest rents) with access to accommodation, laboratory equipment and services.

The largest and the most famous park in the United States is Stanford (Silicon Valley). It is located on the University lands leased for a term of 51 years to high-tech companies. In 1981 there were 80 companies and 26,000 employees in that park. Among the companies one could mention: three major agencies (U.S. Geological Survey, hyper-giants of Electronics (IBM, Hewlett Packard)); the aerospace company ("Lock-Hid"), chemical and biotechnological companies. In the early '80s a new form of technology parks appeared in Western Europe (focused on the needs of the small high-tech enterprises) – the innovation centres, similar to the American "incubators." Their mission is to connect ideas and inventions with entrepreneurs and capital, to attract public and private funds, to provide a "start-up period" for new innovative companies³⁹⁹. The functions of the innovation centres cover different stages of the innovation process, in particular promoting the transition from an experimental production to commercial development of new products. A number of innovation centres are run by local authorities. One could mention the European Network based in Brussels. It brings together about 40 innovation centres from different countries.

³⁹⁸ Belousov A., Vovchenko V. Prospects for the development of the world market of high technologies. // Belarusian Journal of International Law and International Relations. 2002. - № 2.

³⁹⁹ The origins of technoparks. // Innovative portal of Ural Federal District: <http://www.invur.ru>.

The "Science parks" of France can serve as an example of a mixed model of "science parks". This model is based on the Japanese and the USA models. In particular, the largest of them, "Sophia Antipolis", is located on the Riviera, on an area of over 2,000 hectares. In the mid-eighties the land was sold to companies and research organisations. The maximum number of employees was about 6000 people.

The Japanese model of "science parks" the technopolis, in contrast to the parks, involves the construction of entirely new cities, and focus the research on pioneer and advanced science-intensive industries and industrial production. In addition, an important feature of the technopolises is that they attach great importance to the construction of the social infrastructure. In addition great attention is paid to progressive ideas of urban development incl. local traditions and everyday comfort.

The project "Technopolis" in Japan was adopted in 1983. The impetus for the creation of the concept of Japanese technopolises was related to the difficulties that the country was going through after the second energy shock that occurred in 1979. Within that period the heavy industry in Japan was in a depressed state, and the traditional policy of the government was not effective. Small businesses, which employed 90% of the labour force, suffered bankruptcy.

New developments in the Japanese economy in the early 80's (structural rebuilding, aimed at eliminating the existing territorial and sectoral imbalances, the transition to intensive economic growth model based on the use of the achievements of NTP, soft tech development, etc.), have forced the government to radically revise many of the strategic directions of its policies and to make the STP factor a key not only to general economic, but also in the regional plans⁴⁰⁰.

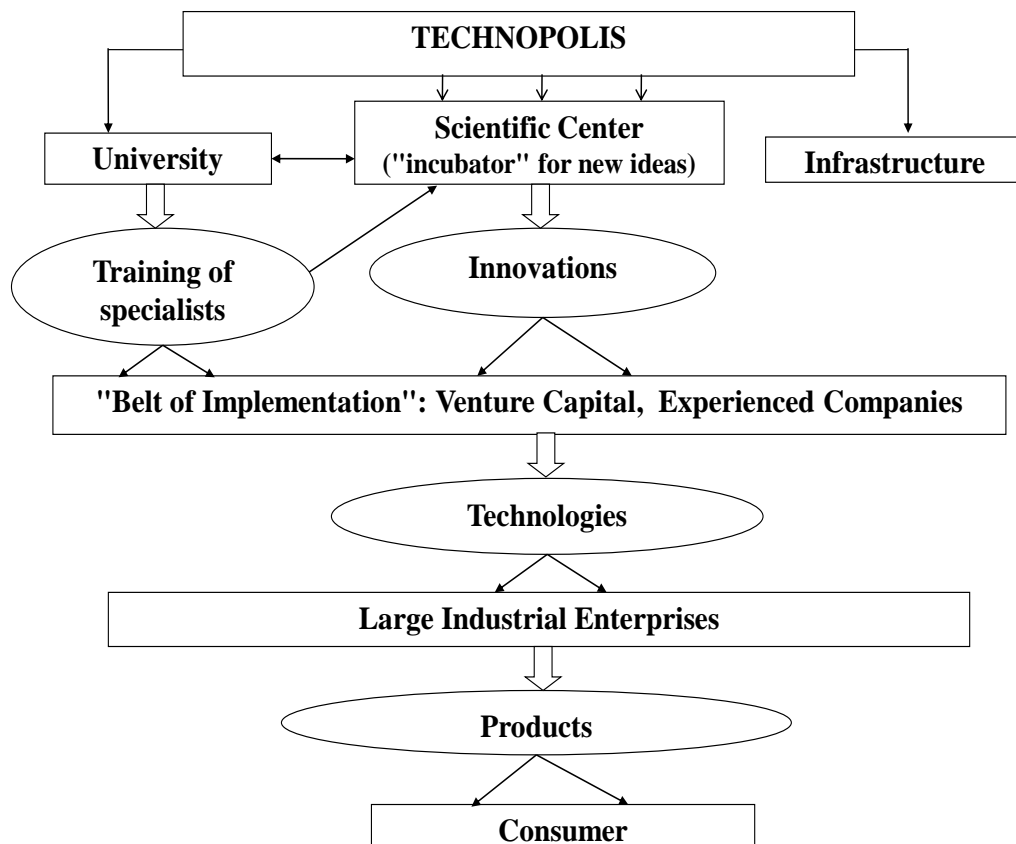
The basis of each technopolis is the so-called incubator of new technologies (or research centre). A Technological Incubator in the industry is a technique used by the Government for the establishment of enterprises that have key influence on the growth of venture capital industries and on technology development. In different countries the term "incubator" has several different shades. For example, in the USA the incubators are large companies that help small businesses. In Japan these are small companies that are able to quickly develop new projects.

The technopolises differ significantly from the research complexes. If, for example, the American technoparks are usually based on one or two technologies and industries, the technopolises have a broader techno-specialisation. In the technopolis, the rapid development of knowledge-intensive base industries should then give an impulse to progressive growth of the economy of certain regions and the

⁴⁰⁰ Timonina L.I. Japan: the experience of regional development. M., 1992. - 125 p.

country's economy as a whole⁴⁰¹. Thus, the technopolis is a form of territorial organisation of the economy, which is based on a scientific centre that acts as the "incubator" for new ideas. These ideas should be picked up later by experienced companies, which then put them into finished products and develop the technology for their production. Furthermore, this technology is transferred to large industrial enterprises. The advantages of such a connection are the rapid introduction of scientific achievements into life, and their commercialisation (Fig. 2.18.).

Figure 2.18. Production organisation in the technopolis



In fact, the development of the concept of the technopolis in Japan meant the use of the principles of the polarized development, but at a qualitatively different, modern level. Having similar to the previous regional programmes target ("discharge" areas of concentrated industry, primarily the Pacific industrial belt, at-

⁴⁰¹ Burmatova O.P. The territorial organisation of the population: tutorial complex. Novosibirsk: SibAGS, 2001. - 120 p.

tracting capital and production capacity to the province) the project "Technopolis" fundamentally differs by the method of tasks realization⁴⁰²

The tasks of a technopolis are:

1. to adapt the existing industrial structure of the regions to a more flexible response to the emergence of technological innovations, i.e. to increase the share of knowledge-based industries, to stimulate the development of scientific and research organisations and to encourage the development of educational institutions that train professionals for them;
2. to stimulate the socio-economic development in the relatively backward regions through the revitalization of high-tech industries in these regions;
3. to locate most of the high-tech industries beyond the large metropolitan areas (Tokyo and Osaka);
4. to assist small and medium-sized companies to enhance their technical capabilities and the competitiveness of their products.

Technopolises' establishment is related to the establishment at regional level of close contacts between local authorities, local scientific capacity and private capital. The integration of these forces is necessary to carry out a joint policy of complex regional development. Basic requirements of the technopolis's development policy are⁴⁰³:

1. the programme of development of each technopolis should be part of the state programme for socio-economic development (coordination of the interests of the state and region);
2. the latest achievements of science and technology within the industrial production should be taken into account;
3. specialists' training of should be carried out by a local university or college. (the technopolis should be hosted in a city, which has at least one university).

Each industrial complex, in turn, should be based on a research centre and developed infrastructure (Fig. 2.19.).

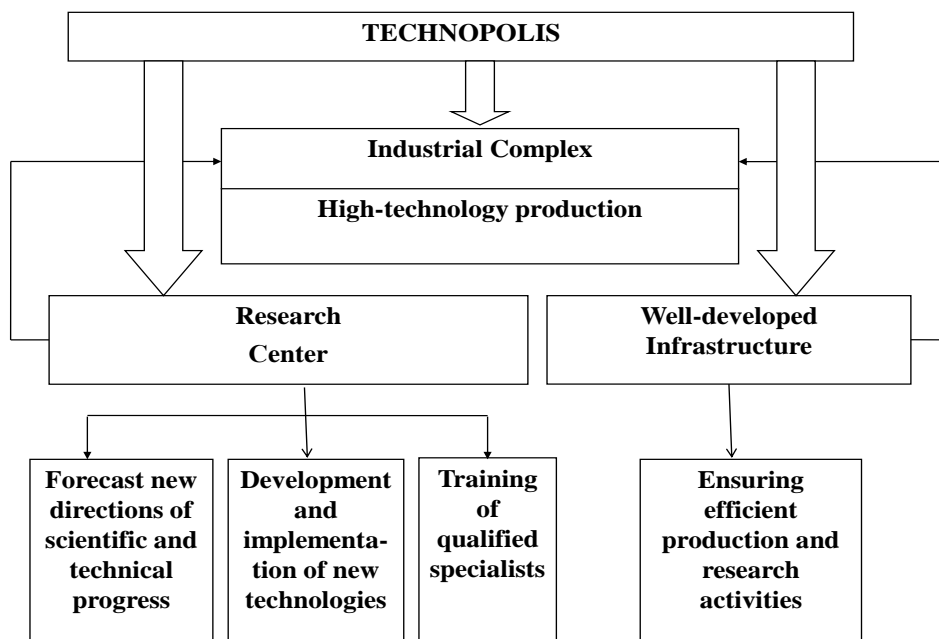
The Research Centre is designed to identify new areas of science and technology (predicted NTP), to develop and introduce new technologies into production and to train highly qualified professionals. The infrastructure should provide efficient production and research activities. It should ensure the promotion of finished products and products to consumers. Emphasis is placed on high-speed transport,

⁴⁰² Timonina L.I. Japan: the experience of regional development. M., 1992. - 125 p.

⁴⁰³ Burmatova O.P. The territorial organisation of the population: tutorial complex. Novosibirsk: SibAGS, 2001. - 120 p.

the advantages of which lie in the fact that the production of high-tech industries, which should be developed in the technopolis is much smaller per unit of value and, accordingly, the share of transportation costs in the cost of production is lower. In addition, high-tech production is not dependent on the introduction of large masses of raw materials such as heavy industry and chemical industry. At the same time, the speed and timely delivery of raw materials and finished products is crucial.

Figure 2.19. Technopolis general structure



The adoption of the concept of a technopolis as a basis for regional policy was followed in Japan by its legislative embodiment, i.e., by establishing a legal mechanism for regulating the development and implementation of the technopolis projects. The law on the technopolis was adopted in Japan in 1983. According to this law for each technopolis a plan should be developed. The preparation of this plan is carried out by local authorities of the region in which the technopolis is expected to be established. The plan of the technopolis should define: the geographic size of the technopolis (an area reserved for the technopolis should not exceed one thousand hectares); the specific objectives of the industrial complex, based on the use of new technologies; the main indicators for long-term planning of the industrial and socio-domestic infrastructure (including means of communication); the financing from private enterprises etc.

Thus, the general requirements for each technopolis are as follows: a low degree of territorial concentration of production and population; a city of a type that

could become an industrial centre; presence of at least one higher education institution (university or college), whose curricula should include courses on the development of knowledge-based industries; well-developed transportation network; presence of crossings and airports.

Accordingly, when evaluating each project of a technopolis one should analyse the following questions: 1) whether a technopolis can be based in the area; 2) whether the plan of the technopolis corresponds to the main areas of national development; 3) whether the realisation of this plan gives the greatest effect on this very area.

Creating a technopolis covers an extended period of time and comprises four stages: preparatory stage, creation of the basic infrastructure, development of the technopolis, commercial stage. State regulation measures on the establishment of technopolis can be divided into two groups⁴⁰⁴: control measures used by federal agencies and control measures used by regional authorities.

The control measures used by federal agencies include measures of direct regulation, such as: approval of the specialisation and the technopolis programme; financial participation in the creation of the technopolis basic infrastructure; funding for national research programmes on the development of key high-tech products and technologies; special loans for specific scientific and technical projects, which are returned only in the case of commercial success of the new technology or product; placement of government research laboratories in the technopolis; partial funding of basic research at universities and other research organisations of the technopolis; financial support for the new priority industries, providing them with special purpose loans; accommodation of government (including military) orders, etc.

Measures of indirect regulation include: promotion of R&D (i.e. special tax credits, accelerated depreciation of assets, preferential leasing of public funds, etc); promotion of innovation, namely, a partial exemption from taxation of risky business; education; tax-exempt insurance reserve funds; provision of subsidies; free access to the equipment and patents that are in the public domain; public consultations; establishment of innovation and other service centres and services; assistance in training and retraining of personnel; provision of an agreement with private banks to provide organisations and enterprises with technopolis preferential loans; assistance for the integration of researchers and manufacturers in unions and associations; conclusion of agreements on joint scientific and technological

⁴⁰⁴ Evseenko A.V., Zverev V.S., Untura G.A. Processes of regional scientific and technological development. Novosibirsk. 1993. - 220 p.

projects; adoption of temporary exemptions in the legislation (limiting competition law, protection of the domestic market, the new high-tech products, etc.).

The main trend in the contemporary policies for state regulation of the processes of technopolis's creation and functioning in the developed countries is the gradual replacing of direct measures (including financial) by indirect methods (promotion of private investments in the technopolis in reducing the share of public investment).

The Japanese economy is also characterised by a tendency of a gradual reduction of government regulation and expansion of local governance. In the planning and construction of technopolises the principal role, as it has been already noted, is given to local authorities. For example, prefectures and cities are developing programmes to create technopolises and allocate up to 2/3 of funds for their construction. The central authorities should deal with strategic and structural issues, and with measures to support R&D systems and knowledge-intensive industries in the economy.

The control measures used by regional authorities include: measures of direct regulation (development and implementation of a technopolis programme); basic infrastructure construction funding (including transport and information networks); funding priorities for STP; creation of advisory bodies; financing of regional centres, centres of technical documentation etc.

Indirect regulatory measures, used by regional authorities, are: providing benefits to local taxes; establishment of low prices of land and real estate for science and technology, and industrial companies in the technopolis; low prices for the rent of the regional property; discounts on electricity used by companies, provision of credits and establishment of tax relief for scientific, technical and industrial activities in the technopolis, incl. companies in transition to a new specialisation; provision of low-interest loans to companies located in a technopolis; creation of regional funds for re-specialisation assistance; development of priority directions for scientific and industrial activities, venture capital companies, moving professionals, companies and capital from other areas; ensuring equal access to the use of common structures in the technopolis; counselling and other assistance to regional information, advisory and financial centres and centres of technological leadership.

The government financed the project "Technopolis" mostly indirectly. Only about 1.5 billion yen from the central budget were allocated to technopolises annually. At the same time, the "Law on technopolis" provided to the project participants fairly substantial tax and credit incentives to encourage business and research activities in the technopolis. Thus, 5 years after the beginning of the programme a system of accelerated depreciation for the high-tech companies was introduced, which allowed companies to deduct after the first year 30% of the cost of equipment and 15% of the value of buildings and structures. In addition, for the first 5

years in the technopolis the tax on new investment in equipment was reduced by 30% and the tax on buildings and structures - up to 15%. There was also a full or partial exemption from tax on capital equipment for research and development. It was permitted to include in the column "loss" of the companies the budgets of the new legal entities.

Special financial assistance was provided to small and medium-sized companies involved in the programme. A corporation, financing small and medium-sized companies, provided them with loans on favourable terms - a rate of 2.7% per annum with maturity of 15 years. By estimates of MITI, the average cost of building a technopolis is about 550 billion yen (\$2.4 billion).

The efficient creation of technopolises is impossible without external support, i.e., without the participation of the state (in particular through the development of state regional programmes). Japan realised that the Silicon Valley was supported by the large-scale programmes of the U.S. Department of Defence and NASA.

The concept of creating technopolises in Japan's regional policy is an attempt to recreate the concept of "polarized" development on a higher level corresponding to the era of rapid development of scientific and technological revolution. In general, the idea of technopolises as regional research and production systems that promote economic development in peripheral regions is certainly rational. Similar complexes with different names have become increasingly widespread in many industrialised countries.

Foreign experience on the establishment of industrial parks and technopolises seems to be very useful for Russian conditions⁴⁰⁵. This is particularly important considering the economic crisis and the focus on an innovative path of development.

At the same time, creating an innovation economy in Russia, including the development of innovative local production systems, such as technoparks and technopolises, faces a number of difficulties, without the overcoming of which the hope for success is problematic. The main difficulties, in our view, are:

1. a highly monopolised market and, consequently, low level of competition. Under these conditions the large companies-monopolists are not interested in innovation. The task of the state to create a competitive environment and incentives for the development and implementation of innovations is not fulfilled. It is especially important to create conditions for attracting private investment to the innovation sector, as only public funding is not enough. As the world practice in developed countries shows, private investments in innovation are much higher

⁴⁰⁵ Sumskaya T.V. Operation of technopolises and technoparks abroad and lessons for Russia. // Bulletin of the NSU. Series: Social and Economic Sciences. 2007. Volume 7. Issue 1. - P.14-24.

than the state ones. It seems that the problem of stimulating innovation could become an important tool for public-private partnerships.

2. weak applied science; its significant collapse in the post-Soviet period put constraints to the introduction of innovations in the production and commercialisation of innovations. The problem of the development and implementation of innovative projects in Russia is not new and is primarily related to the lag of the existing system of economic management and long-term prediction together and the lack of proactive approach. Without the development of a new strategy it is difficult to navigate in the innovation space.

3. absence of a coherent long-term national science and technology policy; uncertainty of priorities in innovation. The business will not invest in innovations without such a policy and clarity of the perspectives. Strategic directions of scientific and technological development should be defined at state level in compliance with global trends and taking into account national reserves, capabilities and needs. In addition, a system of maximum preferences for the innovative priorities (financial, fiscal, technological etc.) should be designed.

4. the necessary legal environment and general rules for stimulating innovation, return on investment security, intellectual property protection, establishment of relationships between the investor and the owner of an innovative idea are not in place. In foreign practice, these tools are created and operate efficiently, thus stimulating private investments in high technologies.

5. inflexible tax and financial state policies in the field of innovation; lack of tax incentives for private investors and funds; high lending rates for the projects, not included in the cost of R&D costs, etc .

6. presence of various administrative and other barriers to development and innovation. The high level of corruption inhibits innovations at all stages.

Thus, it is a necessary to develop the necessary state mechanism for development and innovation, taking into account the interrelated economic, legal and institutional elements that encourage investments in innovations.

The attractiveness of the technoparks and technopolises for enhancing regional development in Russia is a possibility not only to strength the investment and innovation sector, to encourage the interaction of science and industry, to restructure the economy with orientation towards high-tech industries (and as a consequence to reduce production costs and improve the competitiveness), but also to raise the level of the socio-economic development and to improve people's life.

2.7. The role of large corporations in LPS: empirical evidence from the Russian economy

The processes of real industrial markets emergence and creation have occurred in the Russian economy in the last 20 years. The level of economic activity of large

enterprises and level of dominance (market power) of one or several companies are among the most important market indicators. This dominance plays a crucial role for many local production systems. Large corporations play a key role in the economic development of many Russian local production systems, since they provide jobs, maintain all facilities, and determine the general situation. One cannot overestimate the contribution of the large corporations at national and regional levels. The present structure of most of the markets in Russia and the market structure in general are related to the activities of few large companies. The leading position provides the market power of a company. It is important to determine whether there are such market leaders and if so – how stable is their leading position.

In this sub-chapter an approach to the analysis of the company's leading position is proposed. By using that approach, we analyze the "sustainability" and the "stability" of the leading position and therefore the market power on the industrial market.

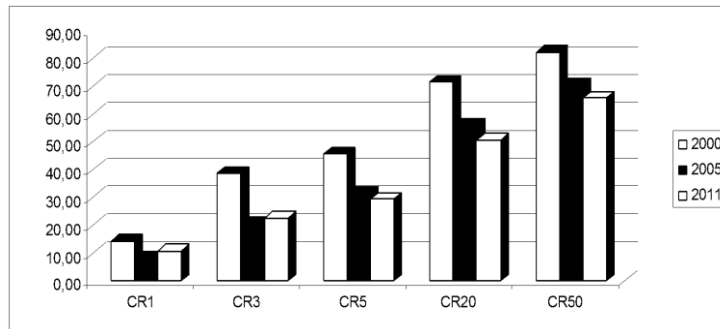
2.7.1. General characteristics of market leadership

Large corporations play an important role in the economy of most countries and regions. They make significant contribution to the main economic indicators creation, get key market positions, and their performance has great influence on the development of national and local economies. These companies have extended investment potential. The historical background and the contemporary integration processes form the very specific conditions in Russia. Under such an environment, the role of the leading companies is especially important. Our estimations show that in 2007, the total turnover of the 20 largest companies was equal to 37% of GDP. The similar indicator for 10 of these companies was equal to 28%. In 2010, after the crisis, these figures increased and were about 38% and 30% respectively.

Fig. 2.20. shows the share of 1, 3, 5, 20 and 50 of the largest companies in a total turnover of 400 national leaders – conditional concentration ratios CR_1 , CR_3 , CR_5 , CR_{20} , CR_{50} .

Results show that large companies are very different. In 2011, the first 20 companies (out of 400) formed about 50% of the total turnover. It is possible to note that most markets are characterised by the existence of definite leaders. It should be mentioned that the shares of 5, 20 and 50 leaders decreased during the period 2000-2011. CR_1 and CR_3 coefficients increased, but their value is influenced by many non-market factors incl. strong state support of selected companies.

Figure 2.20. Concentration of the set of 400 Russian corporations which are leaders in turnover, % (estimates based on the data provided by ExpertRa agency)



Source: Author's calculations

The broad descriptive model of the industrial market development was conceived by Edward Mason and developed by Joe Bain. It is well known as the Structure – Conduct – Performance Paradigm.⁴⁰⁶ Any industrial market structure is described by several basic structural indicators. The level of economic activity of large enterprises and the level of dominance (market power) of one or several companies are among such indicators. Concentration is one of the main characteristics of the market structure. It reflects the number of companies on the market and it shows how much they differ from each other. Concentration is related to the level of competition and the market power of selected companies. It is known from the economic theory, that for the competitive markets the level of concentration should be rather low. At the same time competition leads to the companies' consolidation and the increase of concentration.⁴⁰⁷

A limited number of large companies concentrate the main part of the economic activities. N. Collins and L. Preston analysed changes in the lists of the American leading corporations since the beginning of the 20th century.⁴⁰⁸ They found that this list was not stable. Changes were explained by many factors, but the most important role had the demand. The list of U.S. market leaders became more stable in the middle of the 20th century, due to the following reasons:

- the positions of large companies became stronger;
- the rate of demand changes decreased;

⁴⁰⁶ Scherer, M., Ross, D., 1991, *Industrial Market Structure and Economic Performance*, Boston: Houghton Mifflin Company, p. 714.

⁴⁰⁷ Perloff, J. M., Carlton, D. 2004, *Modern Industrial Organisation*, Addison Wesley, p. 392.

⁴⁰⁸ Collins, N. R., Preston, L. E., 1961, *The Size Structure of the Largest industrial Companies*, "American Economic Review", vol. 51, p. 986-1011

- the management became more professional;
- the economic activities got diversity in character.

The present structure of many markets in Russia and the market structure in general are related to the activities of a limited number of large companies. The leading position provides market power for a company. It is important to determine, whether there are such market leaders and if so – how stable their leading position is. The set of leading companies could be created on the basis of different criteria. It is possible to form a group of top (10, 20, etc.), companies – leaders, according to the level of sales, profit, cost of assets, value added etc. In each market, many groups of leaders can be defined. These sets may include the same or different companies. According to our definition, the “sustainability” of the leading position of the company means that this company is included into the set of leaders more than once, i.e. it is included in more than one group. If a leading position is sustainable, it is defined on the basis of various criteria. If the leadership is unsustainable, groups of leaders are very different.

“Stability” of a company’s leading position in our approach means, that it remains in the group of top companies for several (more than one) years (it reflects long-term leadership).

By summing up the definitions described above, we could formulate, that the leading position of the company is sustainable and stable, if this position is based on various criteria in a long term period. If such companies could be found at the definite market, the leadership at this market is sustainable (or stable) and it would be possible to make forecasts on market’s further development and main tendencies. We suggest a special calculable indicator – sustainability (stability) coefficient (CS):

$$CS = 1 - \frac{N_{fact} - N_{min}}{N_{max} - N_{min}}$$

where:

N_{fact} – real number of leading companies included in all sets;

N_{min} – minimal possible number of leading companies included in all sets;

N_{max} – maximum possible number of leading companies included in all sets.

These coefficients vary from 0 to 1. If a coefficient is equal to 0, it means that the leadership is unsustainable (unstable). If it is equal to 1, it means that the leadership is absolutely sustainable (or stable). It should be noted that a coefficient characterises the market situation in general and it is relevant to the whole market.

The main aim of the present study is to analyse the positions of Russia's largest corporations and to determine the character of their leadership. Thus, the dynamics of these indicators in a long-term was studied and national and regional markets were compared. Based on the assumption of the classical industrial economics, we looked at the stability and sustainability of groups of leading Russian companies. Empirical data were presented using annual rating Expert 400, provided by the ExpertRa agency. We have chosen the following years: 1995, 2000, 2005, 2008, 2009, 2010, 2011. This time interval includes periods of economic stability, as well as unstable ones.

For each year, groups of companies with the highest levels of turnover, gross profit and level of capitalization, were formed. Then, the compositions of these three groups were compared. It was assumed that if a company is a leader on the market according to several criteria, its position is sustainable. The existence of such companies shows that a market structure is formed and trends in its development may be forecasted, based on the performance of the leading companies. If the groups of leading companies do not intersect, the leadership on the market is unsustainable and the market structure is uncertain.⁴⁰⁹

2.7.2. Leadership in Russian and Siberian corporations

We took two sets consisting of accordingly: 20 and 5 leading companies. The stability of the leadership was estimated by comparing the leading sets, formed for different years. The leaders were determined according to the turnover. Analyses were carried out for the national economy and for the Siberian region. Results are presented in Fig. 2.21. and Fig. 2.22.

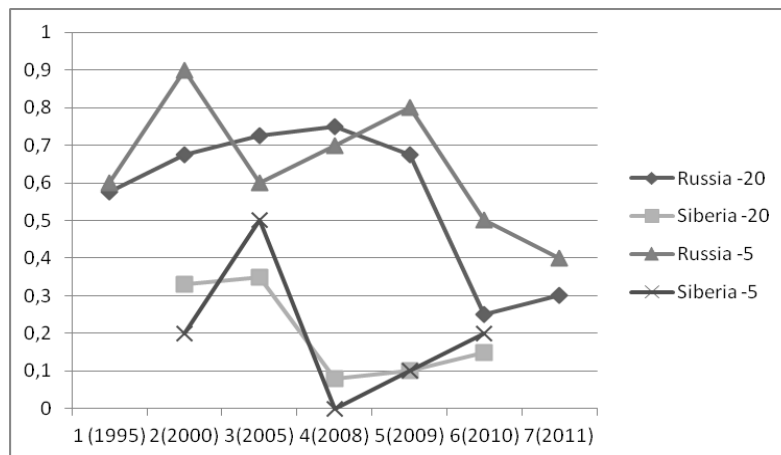
Results show that in general, the sustainability of the leadership in Russia was rather high till 2008. This means that the same companies were the leading ones, according to different criteria. This situation indicates that: the market structure was rather mature; the level of competition under such structure could not be high; the competition was far from perfect. Large corporations had high market power. This is relevant for the sets of 20 leaders, as well as for the sets of 5 leaders. The sustainability of the 5 leaders was slightly lower than that of the 20, except the data for the year 2000. We consider that this could be explained by non-economic factors.

In 2009, the coefficient of leadership sustainability decreased for the group of 20 companies and increased for the group of 5, but in 2010 all coefficients decreased significantly. Such dynamics could be explained by the reaction to the general instability under the crisis and the post-crisis environment. It became difficult for

⁴⁰⁹ See: Yusupova, A., 2009, Structural characteristics of modern Russian industrial markets, "Region: economics and sociology", No. 4., pp. 175-194.

the companies to keep their leading positions in all directions. In 2011, the economy's revival caused a new increase of coefficients.⁴¹⁰

Figure 2.21. Sustainability coefficients (SC) for Russian and Siberian leaders



Source: Author's calculations

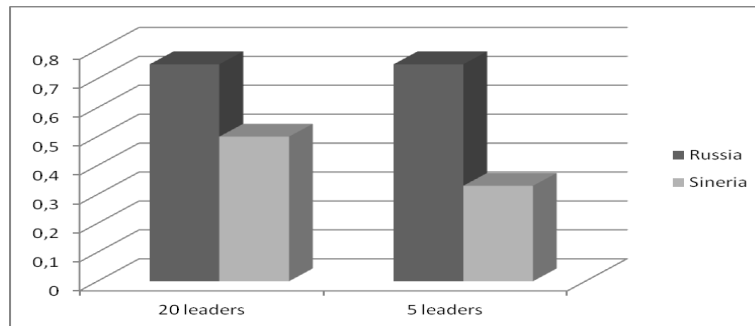
Siberian companies show a different picture. In general, the coefficients of leadership sustainability are lower than the national ones. This is observed for both the 5 leaders and the 20 leaders. In consequence, the positions of the regional leaders are weaker, and at regional level more competitive structures are developed. In addition, the reaction to the crisis revealed sooner at regional level. Already in 2008 SC for the 20 leaders decreased significantly and SC for the 5 leaders was even equal to 0. Indicators' growth was observed already in 2010, which also reflects a more quick reaction to general changes compared to national markets.

The dynamics of national and regional coefficients was different at national and regional level. In some years they even demonstrated opposite movement. The differentiation between national and regional markets is more pronounced for the groups of 5 leaders. We could propose the existence of regional economy specificities.

Leadership stability for a long term period is presented in Fig. 2.22. These data are less relevant to the crisis influence. In general, stability indicators are rather high. It is possible to assume that the indicator for Russia would be even higher without state interference (the case of the state-owned Ukos company)

⁴¹⁰ It should be noted, that some corporations are actually affiliated with each other (for example Gasprom and Gaspromneft). Formally, they are separate entities, their results are registered separately. Therefore real sustainability of leadership should be higher than estimated.

Figure 2.22. Stability coefficients for Russia and Siberia



Source: Author's calculations

Siberian leaders' stability was lower compared to the national ones. Tables 2.8 and 2.9 show some characteristics of the leading corporations. As we can see most of them operate in strategic areas of the economy, such as oil and gas sector. The level of competition at these markets is not high. In 2005, 9 out of 20 leading companies operated in the oil and gas sector, while in 2011 – 8 leaders belonged to this sector. In general, most of the leading corporations operate in the fuel energy complex. Besides, the leaders' list includes well known national monopolists, such as Russian Rail Ways and Sberbank.

Table 2.8. Industrial characteristics of 20 Russian leading corporations (number of companies within each industry)

2005	2011
- Oil and gas – 9	- Oil and gas – 8
- Banks – 1	- Banks – 2
- Non ferrous metallurgy – 1	- Non ferrous metallurgy – 2
- Telecommunications and communications – 3	- Chemical and petrochemical industry – 1
- Electrical power engineering – 1	- Telecommunications and communications – 2
- Ferrous metallurgy – 4	- Electrical power engineering – 2
- Food industry – 1	- Ferrous metallurgy – 2
	- Precious metals and diamonds industry – 1

Source: Author's calculations

The industrial specificity is reflected in the levels of the calculated indicators of stability and sustainability of leadership. The list of the Siberian leaders includes companies which belong to the national giants. They conduct regional expansion, thus tending to widen the areas of influence.

**Table 2.9. Industrial characteristics of 20 Siberian leading corporations
(number of companies within each industry)**

2005	2010
– Oil and gas – 2	– Oil and gas – 2
– Non ferrous metallurgy – 3	– Non ferrous metallurgy – 2
– Telecommunications and communications, IT – 1	– Telecommunications and communications, IT – 1
– Electrical power engineering – 3	– Electrical power engineering – 4
– Ferrous metallurgy – 3	– Ferrous metallurgy – 1
– Transport – 2	– Transport and logistics – 2
– Coal and turf industry – 6	– Coal and turf industry – 3
	– Trade – 2
	– Banks – 1
	– Manufacturing – 1
	– Precious metals industry – 1

Source: Author's calculations

Siberian leading corporations also belong to strategic areas, but only a few companies operate in the gas and oil industry. As it was shown earlier, the levels of leadership stability and sustainability are also lower for the Siberian companies.

Concluding remarks

The existence of clearly defined leaders is an important characteristic of any market. The positions of the leading corporations, their role and market power, are significant factors of the market structure. Our research is based on data provided by a Russian rating agency. We showed that most national and regional leaders in Russia operate in highly concentrated markets, with a low level of competition. There are several other ratings of leading companies. It is necessary to mention the Global 2000 rating, which is based on Thomson Reuters Fundamentals Worldscope data and is constructed with the help of the FactSet Research system⁴¹¹. This rating takes into account the same indicators: turnover, gross profit and capitalisation, with only inclusion on public companies trading on the stock market being used. 26 Russian corporations were included into the 2000 set of the world biggest companies in 2011, while in 2012 this number increased and reached 28. All of these corporations were included in the analysis presented in the study, as present research is based on the similar criteria.

Most of the largest corporations were observed to operate in strategic areas of the economy. They perform in highly concentrated markets, characterised by specific types of competition. Companies' attitude to competition (real and potential) is understood as a very important determinant of their performance, which has sig-

⁴¹¹ <http://www.forbes.com/global2000/>

nificant influence on decision-making and strategic choices. Though most Russian markets do not demonstrate perfect competition, these questions are considered by Russian researchers to be extremely important.

Most Russian enterprises are considered by the High School of Economics (HSE) to take it into account the competition in the processes of decision-making.⁴¹² Only a small part of the companies included in the studied sample (10-20%) did not take into account any competition. The main competitors are: other Russian companies, foreign companies, which sell their products on Russian markets and foreign companies having their production units in Russia. It was shown that if the company competes with any foreign agents (both with and without production in Russia), it attempts to restructure, to introduce new products, to improve technologies and to develop marketing schemes. Competition with domestic rivals motivates the corporations for passive restructuring, abandoning of unprofitable products and staff layoff. Companies operating on competitive markets usually have great expectations concerning the institutional environment.

Each corporation tends to obtain dominant market position and to improve its competitive advantages. This could be achieved by getting higher positions on the lists of leaders and developing stable and sustainable leadership.

The search of ways of effective resistance to main competitors is traditionally considered to be the most important goal of any company. Competitive tension may be reduced considerably through the integrative processes which are observed in many markets. There are several interesting papers devoted to this issue.⁴¹³ The establishment of various business groups is one of the results of these processes.

Researchers from HSE showed that business groups in Russia operate as holdings, based on common stock ownership, as corporations with one decision-making and control centre, as an official financial industrial groups, and as strategic alliances which are arranged for some large-scale projects. This tendency is also typical for many other countries.

⁴¹² Enterprises and Markets in 2005-2009: Results of Survey of Manufacturing Industries, 2010, Materials of XI April International Academic Conference on Economic and Social Development, Moscow, p. 150.

⁴¹³ Avdasheva, S., Golikova, V., Gologopyatova, T., Yakovlev, A., 2005, Large new Companies ("business groups") in Russian Transition Economy: Problem State in Economic Literature, HSE WP1/2005/09; Avdasheva, S. 2006, Business groups in Russian corporate sector: current understanding and new data, Materials of the VII International conference "Economy Modernisation and State"; Pappe, Ya, 2005, Russian Large Business: Subjects Change in 2000-2005, Presentation in CEFIR.

According to CEFIR data, at the beginning of the 21st century, the largest business groups in the world employed 42% of all labour resources and controlled 39% of sales.⁴¹⁴ In highly profitable industries, this share is even higher. 85% of all shares circulating on the stock market deal with companies which are members of 8 main business groups. A joint research of the World Bank and the High School of Economics revealed that 32% of all companies (among 1000 respondents) are members of business groups. Integration leads to the re-setting of the real companies' boundaries. This may be explained partly by an undeveloped institutional environment. Another important factor influencing the integration is globalisation, that creates serious motivations for effectiveness increase, and provides new possibilities. However, it is rather difficult to characterise all effects of globalisation for the large Russian corporations.⁴¹⁵ Some of them could be negative.

Another important factor for the entrance to new markets is the economy of scale. Thus, large corporations could be more successful at the international markets than their smaller competitors.⁴¹⁶

Finally, it is necessary to mention several issues concerning the perspectives of corporations' future development. Two key factors for the development of Russian corporations could be defined here: 1) the increasing role of the state (both in formal and informal ways) and 2) the increasing share of the stock market in financing corporations' projects.⁴¹⁷ These factors are related to: a rather strict state regulation in strategic industries; limited involvement of foreign agents' in these industries; simultaneous attraction of multinational corporations and long-term foreign investors to nonstrategic areas; integration processes' intensification. In the long-term, the following developments are expected in Russia: an increase in the general level of competition; long-term strategic investors' presence on Russian markets; growth of Russian corporations and their transcreation to multinational companies; an increase in the share and role of external financial sources.

⁴¹⁴ Russian Corporation: Internal Organisation, External Influence, Perspectives of Development, Moscow 2009

⁴¹⁵ Avdasheva, S. 2006, Business groups in Russian corporate sector: current understanding and new data, Materials of the VII International conference "Economy Modernisation and State".

⁴¹⁶ Golikova, V., Gonchar, K., Kuznetsov, B., 2012, Influence of Globalisation on the Performance of Russian Industrial Enterprise, Materials of XII April International Academic Conference on Economic and Social Development, Volume 4, Moscow, pp. 21-30.

⁴¹⁷ Russian Corporation: Internal Organisation, External Influence, Perspectives of Development, Moscow 2009, p 542.

2.8. Comparison between innovative and strategic priorities of small and large companies in Russian LPS

Industrial companies are the core of the local or national innovation systems. However, large, medium and small enterprises differ significantly in their role in the innovation process, resource potential, strategic priorities and objectives. The study focuses on the comparative analysis of the strategic priorities of the innovative activities of Russian companies of different size.

The complexity of such an analysis is due to the low availability of information. This appears as a consequence of imperfect innovation statistics, information closeness of Russian companies and their unwillingness to disclose the innovation side of their business.

In the matching process we used:

- State Statistics official data;
- data collected through a special study of small innovative companies located in Novosibirsk Scientific Centre⁴¹⁸;
- data collected through a special study on small innovative companies participating in the project “Competing for the Future Today: a New Innovation Policy for Russia”;
- research carried out by the rating agency “Expert RA”;
- inputs for the RSPP report “The Competitiveness of Russian Business and its Development in the Near Future”;
- research carried out by the New Economic School (NES) and the Centre of Technology and Innovation PriceWaterhouseCoopers.

The heterogeneity of data sets used in the present research and the different approaches to data collection and analysis cause the incorrectness of the comparison between the specific parameters’ numerical values. Nevertheless we were able to identify some general facts and trends.

2.8.1. Innovative behaviour and strategic priorities of companies

In order to characterise the features of the innovative behaviour, depending on the scale of the business, we have divided the companies into three types: small innovative companies; large and medium-sized companies with a traditional business model; and major innovation-driven companies with integrated business models (companies with research and production units).

Small innovative companies are extremely important in developed market-oriented countries, since they act as the main institutions providing effective trans-

⁴¹⁸ The study was conducted in 2009 – 2010 by the group of researchers with the participation of the author. The special questionnaire was worked out. The sample consists of 60 companies.

fer of fundamental research to real economy. Our analysis of the of the small innovative companies located in the Novosibirsk Scientific Centre showed that the majority of the companies could be characterised either as spin-off companies or as specialised suppliers⁴¹⁹.

Spin-offs are newly established small companies, who have recently separated from the major research labs or parent companies. Usually at the start of their activities such companies rely heavily on the “mother” organisation. This can be in the form of direct financial support or shared infrastructure. The later means that a small company is allowed to use premises and/or the research and production base of the “mother” company or of the research institute on favourable terms. The typical behaviour model for such companies is the innovative entrepreneurship – selection and pilot exploration of scientific and technological ideas.

Specialised suppliers are small companies that provide important contributions to complex manufacturing systems in the form of equipment, tools and software. Innovative objectives of such small companies deal with the design and production of specific elements required by the large companies.

Large and medium-sized companies with a traditional business model are characterised by the structure of commodity output and supply chain. Certainly, the strategic focus of such companies on the operational efficiency and financial performance affects their innovation priorities. The research of large Russian companies’ innovative projects, carried out by the “Expert RA” agency, showed that the majority of projects aim to increase the quality of traditional products or to upgrade them to higher price segments. In general, large companies’ products on Russian and international markets tend to take place in the price range between the products from China and the products from the USA and Europe. Almost all of the surveyed companies were focused on the Russian market. Almost all presented projects are related to innovations’ improvement. Unfortunately, “pioneering” projects aiming to establish leadership in high-technology industries or create new markets are missing in the sample⁴²⁰.

Thus, the characteristics of the innovative behaviour of large companies with a traditional business model include incremental product and process innovations.

Major innovation-driven companies with an integrated business model have traditional production units and innovative units in their structure that are involved in the development of new high-tech areas. Unfortunately, there are very few busi-

⁴¹⁹ Kuznetsova S. (2010), Small innovative companies: trajectories of development and success factors., *Innovation*, № 12, pp 55-61

⁴²⁰ Big Business Innovation. “Expert RA” researches.

URL: http://www.raexpert.ru/researches/stimulate_innovation/part1

nesses in Russia, that can be classified as major innovation-oriented companies with an integrated business model. The most vivid examples are Rosatom State Nuclear Energy Corporation, Russian Technologies State Corporation, Corporation (AFK) “System”, and Federal Grid Company UES.

The innovation priorities of the major innovation-oriented companies with integrated business models are consistent with the hybrid model of behaviour, which combines the traditional model with an innovative entrepreneurship.

The typical innovative behaviour models of different groups of companies are summarised in Table 2.10.

Table 2.10. Models of innovative behaviour

Type of company	Characteristics of the innovative behaviour
Small innovative companies	
-Spin-offs	Innovative entrepreneurship - selection and pilot exploration of scientific and technological ideas
- Specialised suppliers	Design and production of the specific components
Large and medium-sized companies	
Large/medium-sized companies with traditional business models	Incremental product and process innovations
Major innovation-driven companies with integrated business models	The hybrid model (traditional model + innovative entrepreneurship)

Source: adopted by the author

2.8.2. Innovative activity of large and small businesses – a comparative analysis

According to statistics, during the first decade of the 21st century, the innovative activity of Russian industry remained low: the number of enterprises that carried out innovations is in the range from 9.3 to 10.6% of the total number of enterprises. The highest values of the indicators of the innovative activity are typical for the Russian high-tech sectors (telecommunication equipment, aircraft and space vehicles, etc.). In 2009 the corresponding value approached the European average and reached 29%⁴²¹.

⁴²¹ Indicators of Innovation in the Russian Federation: Data Book. M.: Higher School of Economics Publishing House, 2012.

In the analytical report “Russian innovation index”, dedicated to the evaluation of the status of the Russian innovation system components it is showed, that the innovation activity of an enterprise directly depends on its size (see Table 2.11.).⁴²²

Table 2.11. Innovation activity by the size of the businesses

Number of personnel	<50	50 - 100	100 - 200	250 - 500	1000 - 5000	5000 - 10000	>10000
The share of innovative companies (%)	1,2	4,6	7,0	12,5	39	70	76,6

Source: adopted by the author

Thus, the innovative activity of small businesses in Russia is much lower than that of the large ones. However, a number of recent studies have shown positive dynamics of the share of small enterprises implementing technological innovations. Leaders in the innovation activities are the enterprises in the chemical industry (11.3%) and also enterprises producing electrical, electronic and optical equipment (10.9%).

The reasons for the low innovation activity of Russian companies are rooted in the sectoral structure of the economy, as well as in the lack of sufficient incentives for innovations. The low competition level in the dominant part of Russian markets reduces the motivation for their design and implementation. The lack of resources, typical for the Russian enterprises, also has a negative impact on their innovative activity.

Russian companies are spending much less on innovations than their foreign competitors in the relevant sectors. As a result, active enterprises never have enough resources for innovations.

According to the study of the rating agency “Expert RA”⁴²³, before the crisis, the share of R&D expenditure in the revenues of the largest Russian companies (rating “Expert-400”) was about 0.5%, or 4-6 times lower than that of foreign companies. In the two last years, this index has fallen by more than a half to 0.2% of total revenues. Leaders in terms of R&D investments in Russia are the machine building companies, but even among them, the ratio of R&D expenditures in relation to the revenue does not exceed 2%. In less technologically advanced sectors of the economy the gap is even larger. For example, for Severstal Group the ratio

⁴²² Gohberg L. (ed.), 2011, Russian Innovation Index, HSE, Moscow

⁴²³ Big Business Innovation. “Expert RA” researches, (2013).

URL: http://www.raexpert.ru/researches/stimulate_innovation/part1.

of R&D expenditures in relation to the company's revenue in 2009 amounted to 0.06%, while the value of the same indicator of the metallurgical corporation ArcelorMittal was 10 times more. According to some estimations, the corporate spending on R&D in Russia was rapidly recovering in 2010. However, the return of the innovative activity of the large Russian companies to the pre-crisis levels would only mean the conservation of the gap with the world's technological leaders.

The entrepreneurs consider underfunding to be the major cause for the sluggish innovative activity of the enterprises. According to statistics, in 2009 74% of the total expenditure on innovation in the industry as a whole, were own funds of the enterprises. The budget support provided only 3.4% of these costs⁴²⁴. Our study concompanies that this trend holds for small innovative companies. 98% of the respondents used own funds to finance innovations. Among other sources of funding, the majority of the respondents pointed bank loans and public and partners funds.

In general, for the Russian industry the share of the innovative products in the total sales amounted to 4.6% in 2009. However, it should be noted, that such a low value of the index is related to the crisis in the economy. In the preceding five years, this indicator showed a higher value. The share of fundamentally new products in the total industrial production in Russia is very small, less than 0,1 of the percent. The value of this parameter in the high-tech sector is slightly higher (0.5%).

The survey carried out by the High School of Economics found that only 5% of the large innovative companies believe that their products are new to the world market⁴²⁵.

The innovative activity of large Russian companies is focused primarily on the acquisition of machinery and equipment provided by foreign manufactures. Even the mega-companies, employing over ten thousand people, prefer to import key knowledge from abroad. The main reason is the deep technological gap, thus the adoption of an overall strategy is perceived as the only alternative⁴²⁶. Data show that a high percentage of the companies from the group of innovation-active (34.6%) did not carry out any activity related to the creation of new knowledge (research, development, design)⁴²⁷. In most of the cases the dominant strategy is oriented towards passive technological borrowing. Although most researchers

⁴²⁴ Gohberg L. (ed.), 2011, *Russian Innovation Index*, HSE, Moscow.

⁴²⁵ Indicators of Innovation in the Russian Federation: Data Book. M.: Higher School of Economics Publishing House, 2012.

⁴²⁶ Gonchar K., Kuznetsov B., Simachov U. (2010), *The Competitiveness of Russian Business and its Development in the Near Future*. Inputs for the report of the RSPP. M.: RSPP.

⁴²⁷ Gohberg L. (ed.), 2011, *Russian Innovation Index*, HSE, Moscow.

agree that the borrowing and adaptation could become the main sources of a rapid catch-up technology development, the experience of the advanced innovative countries testifies that borrowing must be accompanied by the creation of additional new knowledge. In terms of “ability of companies to borrow and adapt technologies”, Russia had 41st place out of 133 in 2009⁴²⁸.

For the small enterprises, the average value of the index of the share of innovative products in the total goods and services produced is less than the total for the industry. In the manufacturing industry, the share of the innovative products is 1.5%. Somewhat better is the situation in the chemical industry (4%) and in the production of electrical and optical equipment (5.4%).

In our study, using two basic parameters (level of products’ novelty and orientation to the national or international market), we distinguished a group of 26 companies (30% of respondents), which we call “leaders”. For such companies, the predominant source of technological innovation is the “privatisation” of academic results and the development of products and processes in rapidly growing sectors (specialised software, scientific instrumentation, biotechnology, electronics, etc). The average assessments of the level of the produced goods/services’ novelty for the leaders are rather high: 61.5% of respondents believe that their products are new for the Russian market, and 50% - new to the world market. The relatively high level of the novelty of the products of the leaders is accompanied by the implementation of the strategy for “high quality at a high price”. In general, the leaders are following a more proactive approach - they tend to be more open to the outside world and are willing to cooperate with other actors of the innovation system⁴²⁹.

2.8.3. Incentives for and barriers to innovation

A number of surveys of Russian companies clearly demonstrate that in general the Russian economic environment does not generate sufficiently strong incentives to increase the innovative activity of the companies. However, factors that motivate the companies to innovate are essentially determined by their industry and the characteristics of the markets. According to companies’ executives, only two sectors of the Russian economy (the food industry and the ICT sector) have relatively high incentives for innovation in combination with sufficient resources. In the majority of industries including oil and gas, electronics, automobiles, infrastructure industries, the level of incentives for innovative activity is estimated as very

⁴²⁸ OECD Reviews of Innovation Policy: Russian Federation 2011. URL: oecd.org/science/inno/48098600.pdf.

⁴²⁹ Kravchenko N., Kuznetsova S., Usupova A. (2011), Development of innovative entrepreneurship at the regional level, Region: Economics and Sociology, №1. pp. 140-161.

low. The innovative activity of the companies is negatively affected by such industry factors as: low requirements for innovativeness of products and services in the domestic market, complexity of the access to the global markets and low level of intellectual property protection⁴³⁰.

One of the main objectives of our study on small innovative companies located in the Novosibirsk Scientific Centre, was to identify the main barriers for their development and growth. In the questionnaire, we pointed out typical barriers, which were estimated by respondents on a 5-grade scale (5 – the most important, 0 – insignificant).

As the most significant barrier, respondents indicated the lack of financing for business creation and development. Financing is the key factor for all small business. The majority of the new companies are low-budget start-ups launched with personal savings and contributions from friends or relatives. The second barrier is the shortage of qualified staff. Staff limitation becomes more important, as the company moves from introduction to growth stage of its life cycle. Inadequate laws, innovations' high costs and the uncertainty in the demand for new products were also recognised as significant obstacles to business development⁴³¹.

Under the project “Competing for the Future Today: a New Innovation Policy for Russia”, a survey covering executives of small innovative companies and representatives of medium and large businesses, was carried out. In the survey, the managers were asked to name three major obstacles restricting the innovative development of their companies. As the main obstacles to innovations, the representatives of small businesses indicated the lack of available funds within the company, the low availability of external financing and the costs and risks associated with the innovations. 18% of respondents considered as significant obstacle to their innovation development the lack of qualified personnel. The ranking of the barriers for large and medium enterprises shows very similar results (Table 2.12.)⁴³².

Thus, we can draw a general conclusion that the major barriers to the innovative development of Russian companies are: financial and demand constraints, imperfect institutional environment and human potential.

⁴³⁰ Big Business Innovation. “Expert RA” researches, (2013) URL: http://www.raexpert.ru/researches/stimulate_innovation/part1.

⁴³¹ Kravchenko N., Kuznetsova S., Usupova A. (2011), Development of innovative entrepreneurship at the regional level, Region: Economics and Sociology, №1. pp. 140-161.

⁴³² Competing for the Future Today: a New Innovation Policy for Russia, (2010) URL: <http://www.opora.ru/analytics/our-efforts/2010/06/30/>.

Table 2.12. Most important barriers to the innovative development

	Small business, Novosibirsk (score on a 6-point scale)	Small Business (% of respondents who reported this factor)	Large/Medium Business (% of respondents who reported this factor)
1	Lack of financing (3,2)	Lack of available funds within the company (60%)	Lack of available funds within the company (62%)
2	Shortage of qualified staff (2,8)	Low availability of external financing (50%)	High costs of innovation (33%)
3	Inadequate laws (2,7)	High costs of innovation (40%)	Low availability of external financing (33%)
4	High costs of innovation (2,4)	Uncertain demand for new offerings (24%)	Uncertain demand for new offerings (23%)
5	Uncertain demand for new offerings (2,3)	Shortage of qualified staff (18%)	Shortage of qualified staff (19%)

Source: adopted by the author

Concluding remarks

Although major business is at the heart of the Russian innovation system, most of the largest Russian companies focus their innovations on the domestic market, by implementing a strategy of passive technology adoption. The contribution of small businesses to the innovative development of the country is still fairly low, but the results of different surveys and prominent success stories of small innovative companies show that a cohort of small innovative companies, with products that meet world standards of novelty and aiming the global markets, has an important role to play.

Cooperation among the participants in the national innovation system is crucial for its effective functioning. The increasing contribution of small businesses to the innovative development should be supported by creating an innovative infrastructure and fostering the demand of innovative products from the big businesses and the state.

2.9. Comparative analysis of the conditions necessary for the creation and functioning of clusters and territorial – industrial complexes

2.9.1. Main advantages of clusters

World practice has a wide range of different forms of economic organisation on the territory. Among these, in recent years the great interest in Russia is manifested in the implementation into regional development practice of free economic zones, industrial parks and technopolises, as well as regional production clusters. All of these forms are a special case of local production systems, the creation of

which in the world regional development in recent years received much attention. In this case, the production cluster is considered to be one of the most important tools in the areas of resource mobilisation for rapid economic growth, competitiveness improvement and diversification of the regional economy.

The cluster approach is one of the relatively new management tools in regional development. It creates opportunities for the region and the business to survive and develop in the transition to a post-industrial and innovative development model. Considerable importance is given to the clusters in the conditions of the current economic crisis.

The founder of the cluster approach is a prominent American economist, M. Porter⁴³³. He defines a cluster as a group of localised geographically interconnected companies - suppliers of equipment, components, specialised services, infrastructure and research and development institutes, universities and other organisations that complement each other and reinforce the competitive advantages of the individual companies and the cluster as a whole. According to Michael Porter, in today's economy, especially in the context of globalisation, the traditional division of the economy into sectors or industry loses operationality. Clusters come out on the top as a system of interactions of companies and organisations, whose importance as a whole exceeds the sum of its parts.

The competitiveness of the country should be discussed through the prism of the international competitiveness not of its separate companies, but of its clusters, combining companies of various economic activities. Within that context, the ability of these clusters to make effective use of the internal resources has a fundamental importance⁴³⁴.

One of the main conclusions made by M. Porter, is that the more developed clusters in a given country are, the higher are the living standard of the population and the competitiveness of the companies. This conclusion has been very attractive to the governments around the world. It encouraged them to choose the cluster approach as an effective instrument of the economic policy. Thus, the presence of strong clusters in the economy of the country is able to provide a high level of competitiveness of the national economy as a whole and its individual regions.

⁴³³ Porter M.E. Clusters and the New Economics of Competition // Harvard Business Review, November-December, 1998. – Pp. 77-90; Porter M.E. The Competitive Advantage of Nations: With a New Introduction. N.Y.: The Free Press, 1990, Palgrave Tenth Edition, 1998. – 855 p.; Porter M.E. The Economic Performance of Regions // Regional Studies, Vol. 37, August-October 2003. – Pp. 549-578; Porter M.E., Ketels Ch, Delgado M., Bryden R. Competitiveness at the Crossroads; Choosing the Future Direction of the Russian Economy, 2007.

⁴³⁴ Porter M. International competition. – Moscow, 1993. – 418 p.

Although the cluster policy in each country depends on the specifics of the state economic policy, at the same time, you can select a number of characteristic features of the clusters. First of all - this is the territorial localisation of the majority of the economic entities - members of the cluster system (suppliers, manufacturers, consumers, elements of the production infrastructure, research institutes, etc.), related to the process of value creation. In this case, the relation of all cluster members should be based on the long-term coordination of their interactions within the framework of the production programmes, innovative processes, etc. Equally important is the presence of a large company - a leader that determines the long-term economic and innovative strategy for the emerging of its geographically-based production system in the region. It should be emphasised that an important feature of the clusters is their innovative focus that defines the priorities for selecting areas and objects to form a cluster.

The contribution of the clusters in the creation of the competitive advantages of the regions of their localisation consists, above all, of the possibility to ensure effects caused by the territorial concentration, specialisation and cooperation of production. In this case, the cluster approach assumes that the competitiveness of each individual member of the cluster is largely related to the competitiveness of the other participants, members of the same value chain, or providing a more favourable external environment of the process of creating value.

In general, an important feature of the cluster approach is the emphasis on the positive synergetic effects of the territorial agglomeration, i.e. proximity of consumer and producer, network effects and the diffusion of knowledge and skills through the migration of staff etc. In other words, a common territory and relationships through the production of the end products contribute to the accumulation of the "critical mass" of the capital in the region, including human, scientific, innovation and production capabilities. As a result of this process, the relationship between the cluster members has a stronger impact on the level of productivity than the scale of each of the participants. Therefore, the organisation of clusters usually does not require additional public investments, thus contributing to the development of priority economic activities through clustering, combining small, large and medium-sized companies in a single complex.

Strengthening the competitiveness of the cluster is primarily achieved through the ability of the principal entities of the cluster to implement innovations, which in turn is accompanied by an increase in the productivity through: increased specialisation and outsourcing of non-core production and other functions, increased employment by attracting new businesses to the region, expansion of the boundaries of the cluster through the involvement of new activities, support to innovation

(with emphasis on the development of small and medium-sized businesses). Thus the clusters become a flexible and efficient form of organisation of the production.

The growth of close relationships between the economic entities - cluster members can more effectively solve various problems related in particular to: the organisation of joint research and development; the facilitation of the access to new technologies and other innovations; the distribution of possible financial and other risks in the various forms of joint economic activities, including joint access to world markets; lower transaction costs in various areas due to the increased trust among the cluster members; sharing of assets and knowledge; training of qualified personnel due to increased contacts with world level specialists etc.

In recent years, many countries have used the cluster approach for the development and regulation of their national innovation development programmes, using various forms of incentives (especially suitable for small innovative companies): direct funding, provision of loans without interest payments, targeted subsidies for research and development; establishment of funds for innovation, taking into account the potential commercial risk; free record-keeping of applications of individual inventors; patent attorneys' free services; reduced government fees for individual inventors, etc.⁴³⁵

2.9.2. Cluster policy in Russia

The Concept Cluster Policy in the Russian Federation is developed and approved by the Government of the Russian Federation in 2008. A number of other documents, considering the clusters as a regulation tool (at federal and regional levels), leading to the establishment of conditions for the modernisation of the production and strengthening its competitiveness in global markets have been adopted as well.⁴³⁶ A number of publications are devoted to the clustering problems of the

⁴³⁵ Kozhevnikova S.Y., Ermolenko O.M. Prospects of regional socio-economic development of the Russian Federation on the basis of creation of cluster models of entrepreneurship. // *Global Economic Crisis: Realities and Ways to Overcome*. - St. Petersburg.: Institute of Business and Law, 2009. - Access: <http://www.ibl.ru/conf/031209/index.shtml/>.

⁴³⁶ One of the first attempts to summarize current practice and to identify priorities for the development of cluster policy in the North of Russia are the materials of the "round table" on "Issues of the cluster policy in the Northern regions of the Russian Federation," conducted by the Federation Council Committee on Northern Affairs and National Minorities December 12 2006. Materials published on the official website of the Federation Council Committee on Northern Affairs and National Minorities www.severcom.ru/; The concept of cluster policy in the Russian Federation. - Moscow: Ministry of Economic Development of the Russian Federation, 2008; Programme of the Socio-Economic Development of the Russian Federation for the medium term (2006-2008), approved by the Federal Government on January 19, 2006 № 38-p; Guidelines for implementing cluster policies in the northern subjects of the Russian Federation max. - Moscow, 2008. - Access: <http://www.severcom.ru/>;

Russian economy⁴³⁷. They outline the major position of the cluster approach in relation to the conditions of Russia.

The declared cluster policy in Russia has a clearly defined regional aspect. It is considered as one of the conditions for the development in a given region of productions that are competitive in the world markets, thus creating conditions for modernisation of the industry and building-up of an innovative economy. Important role in supporting the development of clusters belongs to municipal and state authorities. These authorities are responsible for: implementation of measures for regulatory and legal support; use of mechanisms to stimulate the investment activity on the territory; use of fiscal instruments; provision of in-creation assistance, etc. Ultimately, the creation of clusters is aimed at improving the competitiveness and innovative capacity of the businesses, developing small and medium-sized businesses and promoting the diversification of the national economy.

The cluster approach is able to strengthen the competitiveness of the economy as a whole by strengthening the position of the individual regions on which territory

The strategy of innovative development of the Russian Federation for the period up to 2020. - Ordinance of the Government of the Russian Federation from December 8, 2011, № 2227-p; Resolution of the Government of the Russian Federation of 6.03.2013 № 188. "On approval of the distribution and the provision of subsidies from the federal budget of the Russian Federation on the implementation of activities under the pilot programme of innovative regional clusters" - Access: http://www.hse.ru/data/2013/03/12/1292260617/Постановление_Правительства_от_6_марта_2013_№188.pdf).

- ⁴³⁷ Kozhevnikova S.Y., Ermolenko O.M. Prospects of regional socio-economic development of the Russian Federation on the basis of creation of cluster models of entrepreneurship. // Global Economic Crisis: Realities and Ways to Overcome. - St. Petersburg.: Institute of Business and Law, 2009. - Access: <http://www.ibl.ru/conf/031209/index.shtml/>;
- Kuznetsova O.V. Regional policy of Russia: 20 years of reforms and new opportunities. - Moscow: Publishing house «LIBROKOM» of 2013. - 392 p.;
- Zuckerman V.A. Challenges and opportunities of clustering as a method of enhancing the innovation processes. - Access: http://uiis.com.ua/conf_76/;
- Innovative development of the industry: the cluster approach. / Under the red. A.V. Babkin. - St. Petersburg.: Publishing House of the Polytechnic University in 2011. - 484 p.; Pilipenko I.V. Cluster Policy in Russia: possibility of implementing and competitiveness of regions. // VIII Socratic reading «Post-industrial transcreation of the old industrial regions of Russia». / Proceedings ed. V.A. Shuper. - Moscow: Eslan, 2011. - P. 177-211. Access: <http://www.innoclusters.ru/uploaded/docs/pilipjenko.pdf/>;
- Pilipenko I.V. Conducting cluster policy in Russia. - Access: http://www.biblioglobus.ru/docs/Annex_6.pdf; Shvetsov A.N. Integration mechanisms of acceleration of territorial development. // Theory and Practice of systemic change: T.22. - Moscow: KomKniga 2006. - P.160-180; Semenova E.A. Creation of an effective cluster policy as a basis for a strategy of innovative development. Presentation at the Institute of Scientific Increation on Social Sciences of the Russian Academy of Sciences (ISS RAS) «Modernisation of Russia: key challenges and solutions». - Access: <http://www.riss.ru/index.php/analitika/1563-formirovanie-effektivnoy-klasternoj-politiki-kak-osnova-strategii-innovatsionnogo-razvitiya#.UjgcUCsa2Hs.>; etc.

the industrial clusters are operating. Clusters, therefore, act as a sort of “points of growth”. When the development of the established clusters can expand, the model becomes more complex, but they can also be narrowed, coagulated and disintegrated. Such cluster dynamism and flexibility could be defined as another advantage compared with other forms of production organisation on a territory.

But even more important is the impact of the geographic concentration on the improvement of the production processes and implementation of innovations within the cluster. All companies of related industries in the cluster make investments in specialised, but related technology, in creation, infrastructure and human resources, leading to a massive rise of new companies. This is explained by the fact that modern competitive advantage is related to the development of the technology, management, product promotion etc. Thus, further successful development of the competitiveness of the economic system is possible through the integrated use of the cluster mechanism combined with modern theories of innovation development. In this case, the cluster form of organisation leads to the creation of a special form of innovation - the “ gross product innovation”. This innovation is the product of several companies or research institutions that can accelerate their network of relationships spread within the regional economic space⁴³⁸.

The interaction between the cluster members gives them certain advantages. So, the benefits gained by regional authorities in the implementation of the cluster approach consist of the fact that the cluster can focus on the problems and benefits of the economy. Management bodies of clusters, which may include representatives of government agencies, have access to diverse and concentrated information on the activities of the enterprises, the state of the economy and the labour market, which significantly reduces the amount of the analytical work carried out by the authorities. The advantages obtained by the business structures are associated with a significant decrease in the number of the barriers to enter the markets and lower costs due to the economies of scale. The entrepreneurs are given new opportunities to solve emerging problems and choose ways to overcome them. The interaction with regional and municipal authorities can find new methods and means of resolving the problems related to the competence of the region. Using the influence and prestige of the cluster, business and regional authorities can jointly seek the most effective ways to promote their initiatives, including the preparation of draft laws and lobbying at federal level⁴³⁹.

⁴³⁸ Kozhevnikova S.Y., Ermolenko O.M. Prospects of regional socio-economic development of the Russian Federation on the basis of creation of cluster models of entrepreneurship. // *Global Economic Crisis: Realities and Ways to Overcome*. - St. Petersburg.: Institute

⁴³⁹ Zuckerman V.A. Challenges and opportunities of clustering as a method of enhancing the innovation processes. - Access: http://uiis.com.ua/conf_76/.

Cluster technology development appears to be an important instrument of regional policy, which provides a range of regional opportunities for economic growth. In particular, they include:

- 1) emergence of effective mechanisms of interaction between government and business;
- 2) positive impact of the cluster on the competitive environment of the region;
- 3) transition of science and education achievements in the highly profitable economic sector;
- 4) gradual integration of the regions into the global economic system;
- 5) strengthening the economic independence of the region;
- 6) promotion of the development of small and medium-sized businesses in the region;
- 7) increase in the number of companies around the cluster leading to increase in employment, wages, contributions to the budgets of different levels;
- 8) economies of scale and agglomeration effect, which create "locomotives" of growth impulses for the development of other regions.

2.9.3. State support for the establishment of clusters

Concrete steps in the implementation of the cluster approach in Russia were made following the implementation in 2012 by the Ministry of Economic Development of a competitive selection of programmes for the development of innovative regional clusters. Applying for a competitive selection involves the joint participation of the organisation and the coordinator of the regional and municipal authorities. The criteria for selecting programmes of the clusters were: scientific and technological potential of the cluster; educational potential of the cluster; the production potential; quality of life and development of industrial and social infrastructure areas of localisation of the cluster; organisational development level of the cluster.

94 applications were submitted, of which 25 winners were selected. The winners were divided into two groups. Each of the two groups was supposed to use different mechanisms of state support, especially financial. The first group, comprising 13 clusters, could rely on subsidies from the federal budget of the Russian Federation on the territory these clusters were established. The second group (12 clusters) were included clusters whose programmes of development needed further elaboration, and support through grants for the first phase was not provided⁴⁴⁰.

The distribution of regional clusters by federal districts, federal entities and cities is given in the Table 2.13. It can be seen that the economic policy of the govern-

⁴⁴⁰ Kuznetsova O.V. Regional policy of Russia: 20 years of reforms and new opportunities. - Moscow: Publishing house «LIBROKOM» of 2013. - 392 p.

ment is aimed at helping the most prosperous regions that belong to the so-called “points of growth”. In the South Federal District and the North Caucasus Federal District there were no territorial innovation clusters supported. One cluster was supported in the Urals, as well as in the Far East. The Privolzhskyy Federal District became the leader in the number of supported clusters, as well as in the percentage of the selected and declared clusters. The second position was taken by the Central Federal District, and the third – by the Siberian Federal District.

In addition to these measures of state support for the development of clusters, it is expected that other tools will be used, such as⁴⁴¹:

- support for the implementation of programmes for the development of pilot clusters in the framework of federal and state programmes of the Russian Federation;
- implementation of programmes for cluster development institutions such as: the State Corporation "Vnesheconombank", the Foundation for Assistance to Small Innovative Enterprises in Science and Technology, Open Joint Stock Company (JSC) RUSNANO, JSC (Russian Venture Company) etc.;
- participation of large state-owned companies (such as JSC (Russian Railways) JSC (IDGC Holding) (Russian network)) implementing the programme of innovation development in the activities of the pilot clusters;

Table 2.13. Distribution of regional innovation clusters by Federal Districts of Russia

Federal district	Submitted requests	Clusters are supported by subsidies	Clusters are supported by other measures
Central	26	4 (Obninsk in the Kaluga region, Zelenograd in Moscow, Dubna and Pushchino of the Moscow Region)	2 (Troitsk in Moscow, Dolgoprudnyi and Khimki in the Moscow region)
North-West	11	1 (Saint Petersburg)	2 (Arkhangelsk Region, Saint Petersburg)
Privolzhsky	22	5 (Sarov in the Nizhny Novgorod region, the Republic of Moldova, Nizhnekamsk in the Republic of Tatarstan, Samara region, Dimitrovgrad in the Ulyanovsk region)	4 (Nizhny Novgorod Oblast, Perm Territory, the Republic of Bashkortostan, the Ulyanovsk Region)
South	9	0	0
North Caucasus	0	0	0

⁴⁴¹ Kuznetsova O.V. Regional policy of Russia: 20 years of reforms and new opportunities. - Moscow: Publishing house «LIBROKOM» of 2013. - 392 p

Federal district	Submitted requests	Clusters are supported by subsidies	Clusters are supported by other measures
Uralian	6	0	1 (Sverdlovsk region)
Siberian	18	3 (Zheleznogorsk in the Krasnoyarsk territory, Novosibirsk region, Tomsk region)	2 (Altai Territory, Kemerovo region)
Far Eastern	2	0	1 (Khabarovsk Territory)
Of all	94	13	12

Concerning the resource support, the creation of clusters can be funded through: federal programmes and targeted investment programmes; R&D; funds from the Investment Fund of the Russian Federation and the Regional Development Fund; means from the Bank of Development and Foreign Trade; funds for special economic zones and technology parks; venture capital funds; funds allocated for the implementation of national projects; funds for the development of small business.

According to the opinion of researchers and experts⁴⁴², these are just suggestions, and the future will show how they will be implemented. In general, we can note a positive tendency in the economic policy of the country associated with the emergence of a new instrument of state innovative policy in the form of regional innovation clusters.

2.9.4. Clusters and territorial-production complexes

The cluster theory developed by M. Porter has much in common with the concept of the territorial-production complexes (TPC), proposed by N.N. Kolosovsky⁴⁴³ in the middle of the 20th century, which received further development, particularly in the studies of M.K. Bandman and his School⁴⁴⁴. The concept of the TPC is based

⁴⁴² Kuznetsova O.V. Regional policy of Russia: 20 years of reforms and new opportunities. - Moscow: Publishing house «LIBROKOM» of 2013. - 392 p.; Innovative development of the industry: the cluster approach. / Under the red. A.V. Babkin. - St. Petersburg.: Publishing House of the Polytechnic University in 2011. - 484 p.; Semenova E.A. Creation of an effective cluster policy as a basis for a strategy of innovative development. Presentation at the Institute of Scientific Increation on Social Sciences of the Russian Academy of Sciences (SISS RAS) «Modernisation of Russia: key challenges and solutions». - Access: <http://www.riss.ru/index.php/analitika/1563-formirovanie-effektivnoj-klasternoj-politiki-kak-osnova-strategii-innovatsionnogo-razvitiya#.UjgcUCsa2Hs>.

⁴⁴³ Kolosovsky N.N. Theory of economic regionalisation. - Moscow: Mysl', 1969. - 336 p.; Kolosovsky N.N. The problem of the territorial organisation of the productive forces of Siberia. - Novosibirsk: Nauka, 1971. - 176 p.

⁴⁴⁴ Bandman M.K. Territorial production complexes: Theory and practice of pre-planning studies. - Novosibirsk: Nauka, 1980. - 256 p.; Regional Studies for Planning and Projecting. The Siberian Experience. - Paris - New York. Mutton Publishers. 1981; Regional development in the USSR: Modeling the Creation of Soviet Territorial-Production Complexes. Vol.33. - Pergamon Press, 1985; Territorial production complexes: pre-planning research. / Ed. M.K. Bandman, B.P. Or-

on the justification of the effectiveness of the rational territorial concentration of production and the integrated development of all elements of the economy, population and the natural environment within a limited area. The doctrine of the TPC is regarded as one of the components of the theory of location of the productive forces and the territorial organisation of the economy. The essence of the latter is to find ways to ensure the greatest effect due to: 1) the rational territorial division of labour, 2) the concentration of effort (investment, various resources, etc.) on the territory within a certain period of time and 3) the rational organisation of the regional economy.

The implementation into practice of the TPC economic development ideas, combined with the implementation of specific projects for the establishment of TPK as a form of spatial organisation of the productive forces, began in the USSR in the 50's – 70's and continued in the 80's to the early 90's. During this period, a number of large scale TPC in different parts of the country was created. During the Soviet period, TPC were considered the most advanced form of territorial organisation of the productive forces. They were especially widespread in Siberia.

In the Russian literature, the notions of cluster and TPC are often overlapped. At the same time, in spite of a certain similarity between them, there are a number of significant differences. Let me show the main differences between these two forms of production organisation in the area (Table 2.14.).

The Territorial-production complex (TPC) is understood as a combination of productions which: 1) are located in a limited and compact territory; 2) are geographically and technologically connected; 3) comprehensively use local labour and natural resources; 4) are created in order to contribute to the solving of some large problems of national importance⁴⁴⁵.

Table 2.14. Distinctive features of clusters and TPC

Specification	Cluster	TPC
1. Essence and genesis	Cluster - a product of market forces. The basis for the creation of clusters is a business initiative. A set of interrelated manufacturing and service companies (including the creation of technologies and know-how), market institutions, etc.	TPC - the product of a planned economy. A set of interrelated industries (industries of specialisation and completing sub-branches). The main thing - the production, the criterion - minimisation of

lov. - Novosibirsk: Nauka, Siberian Branch of the Russian Academy of Sciences, 1988. – 270 p.); Burmatova O.P. Economic geography and regional studies: Educational and Methodic Complex. – Novosibirsk: SAPA, 2001. – 203 p.); etc.

⁴⁴⁵ Burmatova O.P. Economic geography and regional studies: Educational and Methodic Complex. – Novosibirsk: SAPA, 2001. – 203 p.

Specification	Cluster	TPC
	<p>The main thing - communication for improving the competitiveness and maximizing profits.</p> <p>Clusters - the socio-economic creation</p>	<p>costs of social labour.</p> <p>TPC - technical and economic creation, a form of organisation of the productive forces in solving major regional economic problems.</p>
2. Territorial planning	The clusters do not form in advance, they are created by the agreement of entrepreneurs when the main production already exists	TPC planned from the beginning as a complex. They were built in such a way that all are calculated in advance
3. Destination	Cluster - a method of improving the competition of the regional economy in the market environment. A cluster can only occur where there is a certain business environment	Complexes - is, as a rule, approach to the development of the territory, or method supplements the existing structure of the regional economy
4. Competitiveness	The presence of internal competitive environment, the significant presence of the cluster in the global economy, in the presence of his strong competitive position in the global market	The administrative-command system of planning and management. Lack of competition
5. Basis of the relationships and their character	<p>Economic feasibility.</p> <p>Vertical and horizontal integration</p>	<p>Technologically - production relationship between enterprises.</p> <p>Vertical and horizontal communications</p>
6. Scale of facilities and management	The cluster must include, along with large, small and medium-sized enterprises, venture companies, research institutes, universities, etc., as well as the supervisory authority for the development of the cluster as a whole	<p>At the core - large (often - a vertically integrated enterprise) production facilities, which are usually not susceptible to innovation, inflexible and slow to change.</p> <p>Industry specific management (State Planning Committee, ministries, central administrations)</p>
7. Industry specialisation and orientation	High-tech industries, focused on the final consumer	Branches of the mineral resources sector and heavy industry-oriented manufacturer in the framework of solution of major national economic problems at the national level
8. How it all begins	Modernisation of existing structures	As a rule, with zero. In most cases, TPC advocated as a method of developing new areas

Specification	Cluster	TPC
9. The integrating factor	New knowledge, the various innovations that ensure competitiveness cluster, increation and communication networks providing exchange of increation, ideas and know-how	Items of industrial and social infrastructure. The lack of increation flows between enterprises
10. Structure	Network, the horizontal structure of the “core – distribution”. As a rule, brightly expressed as a separate branch with adjacent services	The hierarchical structure of the “industrial centre - the complex – region”. Large-scale inter-industry complex
11. Competition between enterprises	High	Low (usually absent completely)
12. Factors and constraints limiting the growth of the main production	Skilled, creative thinking frames - carriers of knowledge and skills	Deficient capital production assets. Manpower - one of the factors of productive forces

Source: Own composition with use of publications⁴⁴⁶

More fully, TPC can be defined as a combination of interrelated, steadily and proportionally developing productions of various sectors of the economy that:

1) are established for the joint solution of one or more of the major economic problems (and therefore stand out clearly due to the size of the production and specialisation in a country and its economic region);

2) are concentrated in a limited, necessarily compact territory (with the necessary size and resources) and participate in the solving of given problems;

3) make effective use of local resources;

⁴⁴⁶ Zuckerman V.A. Challenges and opportunities of clustering as a method of enhancing the innovation processes. - Access: http://uiis.com.ua/conf_76/; Innovative development of the industry: the cluster approach. / Under the red. A.V. Babkin. - St. Petersburg.: Publishing House of the Polytechnic University in 2011. - 484 p.; Pilipenko I.V. Cluster Policy in Russia: possibility of implementing and competitiveness of regions. // VIII Socratic reading «Post-industrial transcreation of the old industrial regions of Russia». / Proceedings ed. V.A. Shuper. - Moscow: Eslan, 2011. - P. 177-211. Access: <http://www.innoclusters.ru/uploaded/docs/pilipjenko.pdf/>; Pilipenko I.V. Conducting cluster policy in Russia. - Access: http://www.biblioglobus.ru/docs/Annex_6.pdf; Shvetsov A.N. Integration mechanisms of acceleration of territorial development. // Theory and Practice of systemic change: T.22. - Moscow: KomKniga 2006. - P.160-180; Semenova E.A. Creation of an effective cluster policy as a basis for a strategy of innovative development. Presentation at the Institute of Scientific Increation on Social Sciences of the Russian Academy of Sciences (SISS RAS) «Modernisation of Russia: key challenges and solutions». - Access: <http://www.riss.ru/index.php/analitika/1563-formirovanie-effektivnoy-klasterno-politiki-kak-osnova-strategii-innovatsionnogo-razvitiya#.UjgcUCsa2Hs>.

- 4) have a single production and social infrastructure;
- 5) ensure compliance with the requirements of environmental protection and restoration of natural resources;
- 6) contribute to human resources development.

From the above interpretation TPC are regarded as a form of spatial organisation of the productive forces that solves important regional cross-cutting issues of national importance. Thus, the basic object of study in TPC is the production, viewed within a limited area in close relationship with the rest of the economy, social issues and the environment.

In the process of TPC creation, a number of deficiencies were revealed. These were connected with the existence of the administrative-command system, as well as with the conditions under which the practical implementation of the concept of TPK has been carried out. Among these the most important are:

- 1) TPC creation is carried out in the absence of a unified long-term programme;
- 2) sectorial approach implementation in the creation and financing of complex objects;
- 3) lack of an effective mechanism for TPK components interaction, including: 1) the relationship between different industrial enterprises; 2) the relationship between the companies, on the one hand, and the territory represented by the local authorities - on the other;
- 4) limited use of the economic mechanism.

The creation of the TPC has to take into account the complexity of the territorial development (proportionality, infrastructure, environmental and social problems).

The derogation from the principle of the territorial development complexity and the prevalence of departmental approach led to the emergence of unsustainable forms of accommodation, disproportions in development between sectors of specialisation, industries and service industries, and to reduced efficiency of production in the TPC.

Thus, the socio-economic system that provides for the creation of the TPC is able to create the necessary conditions for the set-up of comprehensive long-term objectives, as well as for the territorial organisation of the productive forces. Unfortunately, that system was not able to provide the necessary conditions for effective practical solutions, because market relations and competition have been kept to a minimum. Nevertheless, despite the fundamental differences between the TPC and the clusters (Table 2.13.), the experience in TPS forming could be useful in terms of creation of regional clusters. Within that context, the existing economic realities, together with the wider use of economic methods of regional development

regulation and the established system of governance at all levels, should be considered (Table 2.13.). The methodological approach of the TPC concept could be used in market conditions, in particular for the assimilation of new regions.

Concluding remarks

Each cluster is characterised by its own features of occurrence and development. The logic of the implementation of the cluster policy takes into account the prerequisites of each particular region, on the territory of which a cluster is formed. Among them we can mention:

- availability of key owners and companies for the development of a cluster which potentially are interested in cooperation in the framework of the cluster;
- high level of technological innovation of enterprises and organisations;
- high competitiveness of enterprises and organisations as potential participants in the cluster in the global market;
- authorities interest in the clustered version of the regional economic development and the expansion of cooperation and collaboration;
- constant support for the development and improvement of the existing business infrastructure;
- availability of a highly skilled professional education system.

Any cluster in the process of its creation and development goes through a number of stages of the life cycle⁴⁴⁷:

- 1) agglomeration (in the region there are a number of companies and other actors);
- 2) cluster emergence (a number of participants, which are located in a limited territory, start to cooperate around a core business and implement common activities through the establishment of partnerships);
- 3) cluster development (new members implementing the same related activities in the region are involved, new connections between new members are established);
- 4) mature cluster (forming of a certain critical mass of actors, developed relationships both within and outside the cluster);

⁴⁴⁷ Innovative development of the industry: the cluster approach. / Under the red. A.V. Babkin. - St. Petersburg.: Publishing House of the Polytechnic University in 2011. - 484 p.; Semenova E.A. Creation of an effective cluster policy as a basis for a strategy of innovative development. Presentation at the Institute of Scientific Increation on Social Sciences of the Russian Academy of Sciences (SISS RAS) «Modernisation of Russia: key challenges and solutions». - Access: <http://www.riss.ru/index.php/analitika/1563-formirovanie-effektivnoj-klasternoj-politiki-kak-osnova-strategii-innovatsionnogo-razvitiya#.UjgcUCsa2Hs>.

5) cluster transcreation under the influence of the changes in technology, markets, etc. Cluster's viability depends on its ability to generate innovations and to adapt to changing conditions. A cluster can be transformed into one or more new clusters that are concentrated around other activities).

In general, the level of development of the various clusters largely determines national competitiveness and clusters' creation and functioning support regions' self-development. The cluster model of the economy of the region and of the state as a whole, may be in Russia an important tool of regional policy, allowing diversification of the economy, an increase in the competitiveness, innovation orientation and promotion of regional development. Within that context it is necessary to create mechanisms for integration of science, technology and production, thus allowing the connection of innovation with production; to assist the transcreation of new knowledge into competitive products and services, and non-market public goods. An important problem is the creation of a system of management of the innovation processes, in order to ensure effective links between all cluster members.

2.10. Local production systems in Ukraine

2.10.1. Economic challenges related to the establishment and functioning of LPS

In the conditions of Ukraine's economy reform, three approaches to the development of production complexes have been elaborated: 1) the concept of local production (territorial-industrial) complexes has been developed; 2) the foreign experience of creating a system of industrial clusters has been adopted; 3) a system of regional competitiveness has been developed.

Among the three directions of production complexes development in Ukraine one could mention the economic, legal and institutional preconditions for the creation of local production systems. This is explained by the fact that under the planned economy priority was given to the development of large industrial complexes of metallurgical and mining industries, as well as heavy engineering. This political-economic trend was implemented throughout the former Soviet Union, but it had the largest impact on the economy of Ukraine. It is sufficient to say that the enterprises subordinated to the Union produced 95% of all products. More than 2000 large enterprises operated under the subordination to all-Union ministries and departments. Experts estimate that 70-80% of the industrial enterprises did not have closed production cycles within the territory of Ukraine. Deliveries from other Soviet republics satisfied 25% of the needs of the Ukraine's industry, in particular

half of the needs of timber and wood-processing industry, and 40% of machine-building and light industry⁴⁴⁸.

Ukraine's economic inheritance from the Soviet Union has not yet been brought into conformity with the modern trends of world economic development. Ukraine remains dominated by large enterprises with annually decreasing competitiveness. In the structure of the exports, precious metals and products thereof were 42.1% in 2007 falling to 27.5% in 2012. In the period 1997 - 2012, the number of the enterprises increased from 615 686 to 1 341 781, i.e. it has grown 2.17 times. However, the aim of establishing of a network of small and medium-sized enterprises capable to compete with big business has not been achieved. In Soviet times, certain forms of local territorial production complexes, such as industrial agglomerations, nodes and centres, were created. However, government agencies never considered them as subjects to structural analysis and transcreation in the system of building the innovation economy.

Meanwhile, the innovation factor is used insufficiently in the economic development of Ukraine. As we can see in Table 2.15, in the period 2007-2011 its level and dynamics in the industrial production are low. This is primarily true for such indicators as the number of innovation-active enterprises and the volume of realised innovation products.

The best indicators of innovative development are observed for the machine building, chemical and petrochemical industries.

Table 2.15. Dynamics of the innovation activity indicators of the Ukrainian industry

	2007	2008	2009	2010	2011
Total financing of innovation activity in Ukraine, UAH bn	10.8	12.0	7.9	8.0	14.3
Number of innovation-active industrial enterprises / % of total industrial enterprises	1472/14.2	1397/13.0	1411/12.8	1462/13.8	1679/16.2
Launched production of innovative products, number of products	2526	2446	2685	2408	3238
Innovative products sales, UAH bn / % of total industrial products sold	40.2/6.7	45.8/5.9	31.4/.8	33.7 / 3.8	42.4/3.8

Source: *Compilations of State Statistics "Science and innovation activity in Ukraine" for the years 2009 to 2011. (In Ukrainian).*

⁴⁴⁸ Ukraine in the national economic complex of USSR. Retrieved from: http://pidruchniki.ws/1256060740415/politekonomiya/ukrayina_narodnogospodarskomu_kompleksi_srsr. (In Ukrainian).

They have a larger share of innovative companies and are also leaders in implementing the production of innovative products and in introducing new technological processes (Table 2.16). This can primarily be explained by the historically accumulated high scientific potential of these industries, availability of qualified personnel and higher innovation expenditures compared to other industries.

Table 2.16 Innovation development indicators of the Ukrainian industry in 2011

Industry	Number of innovatively active enterprises, units / % of total number of enterprises	Number of enterprises that introduced		Number of enterprises introducing production of innovative products, units / % of total number of enterprises in the industry	Introduction of new technological processes, units
		organisational innovations, units / % of total number of enterprises in the industry	marketing innovations, units / % of total number of enterprises in the industry		
Total industry	1679/16.2	185/1.8	196/1.9	731/7.1	2510
Extraction of fuels and energy minerals	16/6.3	2/0.8	0/0.0	0/0.0	27
Extraction of non-energy minerals	37/10.3	8/2.2	1/0.3	5/1.4	18
Food industry	384/16.1	32/1.3	51/2.1	182/7.6	237
Light industry	82/13.4	7/1.1	9/1.5	32/5.2	61
Wood processing industry	53/10.6	2/0.4	10/2.0	18/3.6	31
Pulp and paper industry	66/10.6	2/0.3	4/0.6	10/1.6	21
Production of coke and petroleum products	15/34.9	2/4.7	3/7.0	6/14.0	4
Chemical, petrochemical industry	188/24.0	21/2.7	30/3.8	95/12.1	144
Production of other non-ferrous mineral products	86/10.6	4/0.5	3/0.4	25/3.1	34
Metallurgy	120/15.2	11/1.4	13/1.6	60/7.6	136
Machine-building	443/24.5	69/3.8	64/3.5	272/15.0	1599
Production and distribution of electricity, gas, water	127/13.2	19/2.0	0/0.0	2/0.2	163

Source: compiled and calculated based on data in Collection of State Statistical Committee of Ukraine "Scientific and Innovation Activity in Ukraine in 2011" (in Ukrainian).

Table 2.17. gives a clear picture of the level of innovation activity by type of enterprises. In the period 2008 - 2010 the share of the innovatively active enterprises increased by 3% compared to the previous period mainly due to the increased share of companies engaged in organisational and marketing innovations. Of the total number of companies studied, 4.5% had only technological innovations, 11.2% – only organisational and marketing innovations (non-technological inno-

vations), 5.3% – technological and non-technological innovations. Along with that, the share of the enterprises with technological innovations decreased by 1.8%.

Table 2.17. Distribution of enterprises and organisations by type of innovations (% of the total number of enterprises)⁴⁴⁹

	2008	2010
Total number of enterprises and organisations	100.0	100.0
Innovatively active	18.0	21.0
Introduced technological innovations	11.6	9.8
Introduced product innovations	7.5	5.8
Introduced process innovations	8.4	7.7
Introduced marketing innovations	10.5	12.5
Introduced organisational innovations	8.1	10.2
Did not introduce any innovations	82.0	79.0

At present, Ukraine's economic conditions are significantly changed. In his Annual Address to the Parliament of Ukraine, the President of Ukraine acknowledged that the process of establishing the young Ukrainian state coincided in time with the processes of global transcreation. In view of this, «the protraction with overdue modernisation changes, critical political processes, and deep social stratification were hampering the development of Ukraine, undermining its sovereignty, and keeping it away from the global progress»⁴⁵⁰.

The assessment of the current realities in the economy gives grounds to conclude that a new model of development is necessary. The fundamental goal of recent reforms is to achieve an effect of "continuous modernisation". One way to solve urgent problems in the economic development is to introduce modern systems of territorial administration, primarily local production systems of cluster type. Within that context, priority should be given to the establishment of such entities that would be focused both on process innovations and innovations in the production of final goods or services.

Favourable conditions for the establishment and development of local production systems are being created in Ukraine. In implementing major economic reforms for crisis overcoming, the Ukrainian government identified the reform of the state management of the regional development as one of its priority tasks. The most

⁴⁴⁹ Bilokon O. I. Survey of innovative activity in the economy of Ukraine in 2008-2010 (according to international methodology). (In Ukrainian).

⁴⁵⁰ Modernisation of Ukraine – our strategic choice: Annual Address of the President of Ukraine to Parliament of Ukraine. (2011). Kyiv. Retrieved from: http://www.president.gov.ua/docs/Poslannya_sborka.pdf. (in Ukrainian).

important activities in this direction will be: to review and update the development priorities in the system of regional strategies; to streamline and harmonize the provisions of the targeted regional programmes with national policy documents; to modernise legal conditions for local government operations.

2.10.2. Legal prerequisites for the establishment and functioning of LPS

It should be noted that in the legal and economic vocabulary of Ukraine, the concept of LPS is not used in practice. Usually, the term 'cluster' or its specific versions are used, such as: science park, technology park, technopolis, and other terms that emphasize the innovative content of the organisational structures. Nevertheless, in their essence they usually represent territorial-production complexes at local level.

The legal support for the establishment and functioning of LPS is aimed at creating the conditions for "exit" from the current model of economic development oriented towards the use of existing low technological capacities. The matter in question is that the preservation of such a model will lead to further deepening of the technological gap between Ukraine and the developed countries and loss of its competitive positions. In view of the state of the Ukraine's economy, in 2009 the Cabinet of Ministers of Ukraine adopted a Decree "About approval of the conception for national innovation system"⁴⁵¹. The Conception, among other issues, aims to assure the development of production and technological infrastructure through the creation of innovative structures aimed at supporting small business innovation by 2025. At the same time, the task was set to create economic incentives for the development of science parks on the basis of higher educational institutions, technology parks, technopolises, and innovative structures of other types.

The essential components of the legal provisions for LPS establishment and functioning in Ukraine include: the European Charter on Local Self-governance, adopted in Strasbourg on October 15, 1985; the European Framework Convention on Transfrontier Cooperation between Territorial Communities or Authorities of 21.05.1980; the Additional Protocol to the European Framework Convention on Transfrontier Cooperation between Territorial Communities or Authorities of 09.11.1995; the Second Protocol to the European Framework Convention on Transfrontier Cooperation between Territorial Communities or Authorities of 05.05.1998 (the part which concerns interregional cooperation); Regulation of the European Parliament and of the Council No. 1082/2006 of 05.07.2006 «On a European Grouping of Territorial Cooperation»; the Lisbon Convention on Cluster

⁴⁵¹ Decree of the Cabinet of Ministers of Ukraine No.680-p as of 17.06.2009 "About approval of the Concept of Development of the National Innovation System". Retrieved from: <http://zakon2.rada.gov.ua/laws/show/680-2009-%D1%80>. (in Ukrainian).

Development in European Countries of 2000; the EU clustering manifesto of 2007; the Cluster Memorandum endorsed in Stockholm on 21.01.2008; Recommendation No(84) 2 to the Committee of Ministers of the Council of Europe on the European Charter for Regional/Spatial Planning (Torremolinos Charter); Recommendation to the Committee of Ministers of the Council of Europe No. (2002)1 on Guidelines for Sustainable Development of the European Continent; the Concept of inter-regional and cross-border cooperation of CIS member states, adopted in Astana on 15.09.2004, etc⁴⁵².

Ukraine adopted the "Concept of Establishing Clusters in Ukraine" (Decree of the Cabinet of Ministers of Ukraine No. 1174) in 2003. It defines the general principles of clusters' creation and development. The concept is basically aimed at ensuring high rates of economic growth and diversification of the economy by means of using the cluster model at regional level. It primarily emphasized the need for: 1) creation of innovation clusters, 2) motivation of SMEs to join the business network, and 3) establishment of regional clusters of companies and organisations. The Concept puts special emphasis on the establishment of regional industrial clusters, especially in the most science-intensive and high-technology industries that have sufficient potential to ensure fundamental changes in the scientific and technological level of the industry.

In view of the need to overcome the financial crisis of 2008-2009, special attention to local systems of cluster type in Ukraine is paid. In mid-2009, the concept of national innovation system was developed⁴⁵³. It identifies the components of the national innovation system, incl. the innovation infrastructure subsystem. In Ukraine, it includes industrial-technological, financial, increation-analytical, and expert consulting components. The organisational networks of the innovation system include technopolises, technological and scientific parks, innovation centres and technology transfer centres, business incubators and innovative structures of other types; consulting and engineering companies; public and private investors.

The most fundamental document which developed a comprehensive framework for clustering is the Decision of the Presidium of the National Academy of Sciences of Ukraine No. 220 of 08.07.2009 "About order of forming national innovation clusters". In practice, this decision remains the most widely used document in the field of industrial clustering⁴⁵⁴.

⁴⁵² Prus, I. (2011). Normative and legal providing of transfrontier cooperation. Effectiveness of state management [Collection of scientific articles]. Issue 26, p. 93. (in Ukrainian).

⁴⁵³ The Cabinet of Ministers of Ukraine. Conception of the development of national innovation system. Retrieved from: <http://zakon0.rada.gov.ua/laws/show/680-2009-%D1%80>. (in Ukrainian).

⁴⁵⁴ Chykarenko, I. A. Theoretical and legal foundations of forming national innovation system in Ukraine. Retrieved from: <http://www.dbuapa.dp.ua/zbirnik/2010-02/10ciaisu.pdf>. (In Ukrainian).

In 2009, the Cabinet of Ministers of Ukraine adopted the national strategy for establishing and developing of cross border clusters. The need for the establishment of such clusters is preconditioned by the geo-economic and geopolitical positions of Ukraine. Since 19 out of the country's 25 regions are border areas, with an overall area equaling to 77% of the country's territory, it is feasible for Ukraine to focus on the establishment of cross border clusters and use their output as an element of the state's overall long-term strategy. At the same time, this solution takes into account the global changes in the international division of labour and the lagging of Ukraine behind the other European countries in terms of welfare, level of investment attractiveness, competitiveness, and development of innovative environment. Equally important is the potential tension in the Ukrainian border areas created by the fact that neighboring countries form their growth centres in the vicinity of Ukrainian state borders, thus leading to outflow of labour, intellectual and other resources from the border regions of Ukraine and increasing social tension.

The national strategy concept of establishing and developing cross border clusters focuses on the three main types of border regions in Ukraine: regions including new EU member states; regions involving CIS areas and transborder maritime regions. The concept takes into consideration the measures foreseen in the "Europe without borders" initiative carried out by the European Union and the Council of Europe. These include primarily the Madrid Convention with additional protocols, Regulation of the European Parliament and of the Council 1082/2006 of August 5, 2006, on a European Grouping of Territorial Cooperation, etc.

In evaluating the legal prerequisites for LPS establishment and functioning, it should be noted that Ukraine has a developed legal system of public-private partnership. It is based on the following laws: "On public-private partnerships" (01.07.2010), "On contracts and distribution of products" (14.09.1999), "On concessions" (16.07.1999), "On peculiarities of lease or concession of facilities, centralised water heating and drainage in communal ownership" (21.10.2010). The implementation of the public-private partnership relations is regulated by the Decree of the Cabinet of Ministers of Ukraine «On approval of the procedure of disclosure of increation by private partners to public partners under contracts concluded within the framework of public-private partnerships" (09.02.2011), "On approval of the methodology of identifying the risks associated with public-private partnership" (16.02.2011), "On approval of the procedure of state support provision for public-private partnership realisation" (17.03.2011). Although these regulations are not directly related to the implementation of public-private partnerships in the system of local production systems, they can nevertheless be widely used in the process of establishing, functioning and improving their organisational performance. Within that context, it is possible to identify three areas of action: broadening the financial possibilities for the territories that host LPS en-

terprises; improving the effectiveness of public finances; and introducing new forms of management.

In recent years Ukraine has intensified its regulatory activities towards business environment improvement. Among such activities, a very important role belongs to the cheapening of the liquidation procedure by cutting the number of necessary documents (for cases other than bankruptcy). The approved law "On basic principles of state supervision (control) in the economic activity field" creates a single body of state control within the structure of the central body of executive power; it introduces the principle of division between the standardization, accountability control and market surveillance functions; and it implements the mechanism of "single investment window" at local level in order to ensure high quality of services for investors.

At present, there is a need for elaboration and adoption of the basic law, which would establish the framework conditions for the development of regulatory rules to ensure the establishment and functioning of local production systems of various kinds. This task was set by the Council of Entrepreneurs under the Cabinet of Ministers of Ukraine, which appealed to the Prime Minister of Ukraine with a proposal to create an interagency working group consisting of the representatives of central authorities and non-governmental organisations, with the aim of elaborating the law "On general principles of cluster creation and development"⁴⁵⁵. Currently, the solution of this problem is at the stage of preparation.

2.10.3. LPS institutional environment

The institutional environment for establishing and operating LPS refers to the means of fostering the innovations and stimulating the development of innovative companies. Thus, it is particularly important to implement the provisions of the *acquis communautaire* in the field of intellectual property rights protection, improve the copyright protection, as well as simplify and harmonize the patenting procedures. As noted in the President's Address to the Parliament of Ukraine, the next step should be the implementation of measures aimed at promoting networking among scientific and production facilities, organising the continuous process of identifying and monitoring the drivers of and barriers to innovations, and implementing the developed institutional instruments⁴⁵⁶.

⁴⁵⁵ Protocol of the Council of Entrepreneurs under the Cabinet of Ministers of Ukraine of January 31, 2012. Retrieved from: <http://rpkoda.kr.ua/wp-content/uploads/2012/03/Протокол-засідання.pdf>. (in Ukrainian).

⁴⁵⁶ Modernisation of Ukraine – our strategic choice: Annual Address of the President of Ukraine to Parliament of Ukraine. (2011). Kyiv, p. 91. Retrieved from: http://www.president.gov.ua/docs/Poslannya_sborka.pdf. (in Ukrainian).

The institutional environment of LPS functioning in Ukraine is formed in the conditions of the ongoing realisation of the national strategy aimed at development of local self-governance, gradual empowerment of local communities, transfer of powers from the centre to the regions. Ukraine is introducing such European instruments of institution building as: Twinning (Decree of the President of Ukraine "Issues of implementation of the Twinning programme" of 06.10.2005), TAIEX (Decree of the Cabinet of Ministers of Ukraine "On approval of the preparation and implementation of the programme for attracting foreign aid by the European Commission under TAIEX" No. 316 of 09.04.2008), and the Comprehensive Institution Building Programme (CIB) (Decree of the Cabinet of Ministers of Ukraine "Certain issues of preparation and implementation of the Comprehensive Institution Building programme in the context of the European Union's 'Eastern Partnership' of 10.11.2010 " No. 2078-p).

The implementation of the European institutional development instruments is realised comprehensively and in compliance with both the priorities of the Programme of Economic Reforms (2010-2014) and the European technical and budget assistance programmes that are currently being implemented⁴⁵⁷. In recent years, Ukraine has become one of the leaders among the countries of the European Neighbourhood and Partnership Instrument in terms of quantity of completed and ongoing Twinning projects. In addition, the number of such projects is increasing⁴⁵⁸.

It should be noted that Twinning is the instrument of institution building. Within its framework, the civil servants of similar institutions from the EU member states and the partner countries cooperate on questions related to the implementation of the elements of governance required for the adjustment of national legislation to that of the EU. Another element of the institution building is TAIEX. Within the period 2006-2011, 6 839 Ukrainian government employees participated in 292 TAIEX events, conducted in such areas as freedom, security and justice (61 events), domestic market (127 events), transport, environment and energy (62 events), agriculture and food security (42 events)⁴⁵⁹.

In the institutional structure of the Ukrainian industry, an important place belongs to the "Concept for All-state national purpose-oriented programme for industry

⁴⁵⁷ Official website of the National State Service Agency of Ukraine. Retrieved from: www.nads.gov.ua (in Ukrainian).

⁴⁵⁸ Tolkovanov, V. V. European instruments of institution building and experience of their implementation in Ukraine. Retrieved from: <http://www.kbuapa.kharkov.ua/e-book/db/2012-2/doc/5/04.pdf>. (In Ukrainian).

⁴⁵⁹ Tolkovanov, V.V. European instruments of institution building and experience of their implementation in Ukraine. Retrieved from: <http://www.kbuapa.kharkov.ua/e-book/db/2012-2/doc/5/04.pdf>. (In Ukrainian).

development for the period until 2020"⁴⁶⁰. Its objective is to activate the innovative and investment activity of the industry in order to achieve positive effects for its structure, to provide the market with competitive manufactured goods, and to speed up the integration of the industrial complex into the world production. The concept elaborates approaches to define the optimal way of achieving the goal. This task is fulfilled based on the comparative analysis of the three possible options. The first option entails almost no influence of state authorities on the industrial production in the country, but allows using direct methods of influence through financing the realisation of state orders. The second option proceeds from the search for ways to modernise the industrial production based on imported science and technology achievements (technologies, equipment, certain types of products, services) which are practically not represented on the world market. The risks of the first option are primarily related to the chaotic development of the industrial production. The risks of the second option are related to the possibility for fixation of the national industry peripheral status as a bridge market for satisfying the needs of the countries in the industrial centre.

The most promising option for the shaping of the new Ukrainian economy, but also the most difficult one in terms of implementation, is the third way to achieve the goal of the Concept for industrial development by 2020. It is focused on the structural and technological transcreation of the industry based on medium- and high-technology manufacturing. Thus, the share of domestic research and development should receive an increasing trend in the process of integrating the innovation and industrial policy. The crucial success factors for such a strategy include the establishment of structures, particularly scientific-innovative-industrial clusters in high-technology industries. It is assumed that the new clusters will focus their efforts on the commercialization of the production capacities of state enterprises and industrial research institutions. We also cannot exclude the usage of different forms of public-private partnerships and financing from a variety of sources, including budget, credit and investment funds.

2.10.4. Social factors in LPS development

The methodological basis for research on the role of social factors in the development of LPS is the UN's request to all countries to accept "collective responsibility for consolidation and strengthening of the interdependent and mutually supportive pillars of sustainable development – economic development, social development and environmental protection – at local, national, regional, and global

⁴⁶⁰ Concept for All-state targeted economic programme for industry development for the period until 2020. Approved by the Decree of the Cabinet of Ministers of Ukraine No. 603-p of July 17, 2013. Retrieved from: http://search.ligazakon.ua/l_doc2.nsf/link1/KR130603.html.

levels"⁴⁶¹. Nevertheless, until the recent times, we did not manage to create any more or less complete social system as a precondition for business activity. This disadvantage fully applies also to the network-type economic systems. However, some positive results have been achieved, based on the high efficiency of the cluster forms. The creation of social conditions for LPS establishment and functioning is determined by their social functions, which in turn dictate the social orientation. In accordance with such a methodological approach, within the system of social preconditions for LPS it is necessary to consider all the elements of work and leisure life in a society. Thus, it follows that the cluster systems, on the one hand, make use of the social achievements of the society, while on the other hand, they should take over the business social responsibility function.

The analysis of the major socio-economic indicators in Ukraine (Table 2.18.) compared with those of other CIS countries, proves the relative stability of its development. This indicates the presence of relatively stable social conditions for business.

Table 2.18. Major social-economic indicators of CIS countries in 2012 (in % to 2011)⁴⁶²

Country	GDP (in constant prices)	Industrial goods (in constant prices)	Producer Price Index ¹	Consumer price index ¹	Retail turnover (in constant prices; all distribution channels)	Freight transportation (excluding pipelines)
Azerbaijan	102.2	97.7	98.6	99.7	109.6	106.2
Belarus	101.5	105.7	121.0	121.8	114.1	98.8
Armenia	107.6 ²	108.8	108.6	103.2	102.9	101.2
Kazakhstan	105.2 ²	100.5	102.1	106.0	112.9	109.3
Kyrgyzstan	99.1	79.8	103.5	107.5	111.2	106.4
Moldova	99.8 ²	97.0 ³	104.5	104.1	100.9 ^{3,4}	97.1
Russia	103.4	102.6	105.1	106.6	105.9	102.2
Tajikistan	107.5	110.4	106.3	106.5	115.9	107.2
Turkmenistan	111.1			105.3 ⁵	118.5 ^{6,7}	108.1 ⁸
Uzbekistan	108.2	107.2 ²	106.9 ⁹		113.9 ⁶	105.4 ⁸
Ukraine	100.2	98.2	100.3	99.8	115.9	97.9
CIS	103.4	101.9	104.9	105.5	107.6	104.5

Notes: *Operational data; 1– December 2013 in % to December 2011; 2 – January-September 2012 in % to January-September 2011; January-November 2012 in % to January-November 2011; 4 – Sales revenue of trading companies; 5 – 2012 to 2011; 6 – including turnover of catering companies; 7 – in current prices; 8 – including transportation pipelines; 9 – September 2012 to December 2011.

⁴⁶¹ Web-site of the United Nations Industrial Development Organisation (UNIDO). Retrieved from: www.unctad.org.

⁴⁶² Main socio-economic indicators of the CIS countries in 2012. Retrieved from: <http://www.ukrstat.gov.ua/>. (in Ukrainian).

The social orientation of LPS expresses the relationships among the business entities of a single cycle, in which production activities are carried out in compliance with the principles of social responsibility. A prerequisite for this process is the optimisation of the use of natural, industrial, increation, innovation, finance, labour, and other resources. At this stage of the economic development of Ukraine, the priority aspect in the social orientation of the regional network of collaborating companies and organisations is to preserve the human capital qualitative increase.

2.10.5. Environmental aspects of territorial LPS

The environmental orientation of the network production systems of cluster type is determined by the Ukrainian Law "Basic principles (strategy) of state environmental policy of Ukraine for the period until 2020"⁴⁶³. It identifies the major environmental problems of the country and the methods of solving them. The provisions of the law are based on the fact that the human and anthropogenic impact on the natural environment in Ukraine is several times higher than that in the developed countries. As a result of the environmental pollution in Ukraine, the average life expectancy is approximately 66 years (for comparison, life expectancy in Poland is 74 years, in Sweden – 80 years). According to the Ukrainian statistics, in 2009 the main sources of air pollution were the processing and mining enterprises, as well as the electrical and heat companies (respectively 31%, 21%, and 40% of the total emissions of pollutants released into the air from stationary sources of pollution). Emissions of pollutants from mobile sources account for 39% of the total emissions. According to UNESCO, Ukraine occupies the 95th position among 122 countries in the world in terms of degree of rational use of water resources and water quality. Supplies of drinking water are almost 80% based on the use of surface water, the environmental characteristics and quality of which are the main factors which determine the sanitary and epidemiological welfare of the population.

The implementation of the National Environmental Strategy of Ukraine for the period until 2020 aims to ensure continuous improvement of the environmental situation in all major areas. Particular attention is paid to: atmospheric air; protection of water resources, land and soil; forest protection; protection of geological environment and mineral resources; waste and dangerous chemicals; biosafety.

Ukraine, being a large country in terms of territory, produces uneven technogenic effects on the environment. From the standpoint of the environmental situation, the most problematic areas of the country are the old industrial regions. This par-

⁴⁶³ Basic principles (strategy) of the state environmental policy of Ukraine for the period until 2020. The Law of Ukraine No.2818-VI of December 21, 2010. Retrieved from: <http://zakon4.rada.gov.ua/laws/show/2818-17>. (in Ukrainian).

ticularly applies to the Donetsk region, which has high concentration of production and transport, combined with significant density of population. The Donetsk region is one of the largest anthropogenic environmental polluter in both Ukraine and Europe. The Donetsk region has started the work on the elaboration of a strategy for regional development based on the cluster approach. An international consulting company «Monitor Group» is also involved in this work. The company found that in the economy of the Donetsk region, it is feasible to create 40 clusters. Four of them should be assigned priority importance: metallurgy, machine-building, construction, and agriculture. Taking into account the results of the study, the establishment of regional clusters has been initiated in order to address a double goal: to ensure sustainable development of the traditional industries based on innovations, and to reduce the anthropogenic impact on the environment.

In recent years, Ukraine has developed various methods of solving environmental problems by means of using local production networks. Within that context one should mention the concept of creating environmentally-oriented clusters in the system of environmentally oriented economic development. It is proposed to create economic systems in which the individual economic agents are integrated into a single cycle so that the processes of production activities are complemented with the reproduction of the components of the eco system⁴⁶⁴. The best perspectives for successful functioning have the clusters in the forest complex; protected natural areas; in recreation, tourism and education sectors.

New approaches to the establishment of ecology-oriented network production systems are available in agriculture and food production. In the Lugansk region, the industrial joint stock partnership implemented a vertically organised production project within its structure⁴⁶⁵. Luganskmln grows cereals, it has silos to store the grain, grinding facilities, warehouses, and own mechanized bakeries. Luganskmln plans to build five new factories that would allow it to become a leader in the food market.

The idea of environmentally-oriented network systems provided for the simultaneous development of an eco-city (sustainable city or smart city) and an eco-cluster of the Japanese type. The eco-city is a residential area inhabited by people who want to minimize the consumption of energy, water and food. Such a residential complex was designed in Odessa, and in 2012 its construction was

⁴⁶⁴ Degtariova, I. B. Environmentally oriented clusters as a form of effective development of environmental-economic systems. Retrieved from: http://archive.nbuv.gov.ua/portal/soc_gum/Mre/2010_1/1_5.pdf. (in Ukrainian).

⁴⁶⁵ Tyshchenko, V. V. Applying cluster approaches to forming competitive economy of Lugansk region. Retrieved from: http://archive.nbuv.gov.ua/portal/soc_gum/vsunu/2011_7_2/Tischenko.pdf. (in Ukrainian).

launched 13 km from the city of Kyiv⁴⁶⁶. In the Kyiv region, it is known as 'Ekomisto'. All necessary elements of the social and domestic infrastructure are within the walking distance. The eco-city of Kyiv includes a shopping centre, a beauty salon, a fitness club, supermarkets for food and non-food product groups, a bank, dry cleaners, a paediatric centre, and a dental clinic. As part of the social infrastructure, construction of a school, a kindergarten, playgrounds, bike paths, playgrounds and a walking area are foreseen. For Ukraine the eco-market is a completely new infrastructural form.

Further development of the eco-city idea entails development of eco-clusters. Taking into account the Ukrainian specifics, S. Sokolenko, a Ukrainian clustering expert, determines the following directions for eco-clustering activities⁴⁶⁷: organic farming; biotechnology; biopharmaceuticals; biomedicine; biotechnology; eco-energy; alternative energy; environmentally friendly products; milk and milk products; recreation and travel services; agro-eco-tourism; fishing; green rural tourism; horticulture and crop production; environmentally friendly marine biotechnology; production of organic feed; processing of bio-waste; gardening and berry production; meat production; processing of household and industrial waste.

The clustering processes in Ukraine are speeding up. However, in terms of their target aspect, they focus primarily on solving the problems of production and innovations. Environmental problems often remain in the background. It is very rare that environmental considerations are treated as a major component of the cluster. However, the deterioration of people's living conditions makes it necessary to assign top priority to environmental components when using cluster forms for achievement of the objectives of the socio-economic development at all levels of governance.

III. FUNCTIONING OF LPS IN AN UNSTABLE ENVIRONMENT: INTERNAL AND EXTERNAL THREATS ASSOCIATED WITH THE ECONOMIC CRISIS

3.1. Economic conditions for the functioning of LPS in Bulgaria

We deliberately limit ourselves to examine the economic conditions of LPS functioning in the classical aspects of their analysis.

⁴⁶⁶ Residential complex "Eco-city". Retrieved from: <http://mirkvartir.ua/novostroyki/view/340>. (in Russian).

⁴⁶⁷ Соколенко С. Особливості розвитку екологічно чистого виробництва на основі інноваційних кластерів / Станіслав Соколенко / Режим доступу: <http://ucluster.org/blog/2013/09/osoblivosti-rozvitku-ekologichno-chistogo-virobnictva-na-osnovi-innovacijnikh-klasteriv/>.

The determining economic factors are entirely dependent on the state of the national economy. Part of the relevant indicators that characterise the national economy are: macroeconomic stability, dynamics of the economic growth, balance of payments, inflation rates, interest rate, exchange rate, level of external and internal debt, state of the trade balance, taxation, income and purchasing power of the population, the rate of exchange and the size of foreign exchange reserves; stability of the national currency and prices, investment climate and activity, etc.*

The state continues to be the leading subject that organises, integrates and consolidates the economic, financial, social and security-related processes on its own territory⁴⁶⁸. In the present statement, we leave the security to one side although all other processes that affect and are subject to analysis and commentary in these lines are directly related to its practical realisation.

The modern state realises its function to secure a stable macroeconomic environment in cooperation with other economic operators and the civil society organisations, on the grounds of their shared responsibility to foster the economic development. To this end, it is necessary to apply actively and successfully the tools of industrial, monetary, fiscal, income policy, employment policy, etc. Notably through their application the state creates the necessary minimum conditions for their optimal forming, functioning and development.

In the following discussion we will examine the key indicators that we think will form the present contour of the economic conditions in Bulgaria. Ranked first in importance in forming the economic environment, we place the **macroeconomic dynamics** in the country.

The available data for the Gross Domestic Product at the beginning of 2013 indicate that the growth parameters of this basic measure of the economy remain low and almost the same as in 2012. For 2012, the growth was around 1% and in absolute value, it reached nearly 40 billion euro. The evaluation of the available data allows us not to expect growth to exceed 2% during 2013.

An increasingly acute problem for the Bulgarian economy is the growth of its territorial imbalance. In this sense we can talk about territorial imbalance of the common economic growth – while some regions are less affected by the crisis and

* The data used for the main macroeconomic indicators related to economic conditions of the LPS' functioning in Bulgaria are from the websites of the Bulgarian National Bank (www.bnb.bg), the National Statistical Institute (www.nsi.bg) and the Centre for Economic Development (www.ced).

⁴⁶⁸ Slatinski N., The most significant from an analysis of the RAND Corporation and the foundation "Bertelsmann" (48 pages of the strategic nebulosity) - www.nslatinski.org (16.05.2013) (in Bulgarian)

their GDP is growing, other areas not only keep pace with the leading region (Sofia-city region), but their GDP most likely continues to decrease. This fact is of particular importance for the functioning of the LPS.

The low values of this important economic indicator illustrate the extremely bad condition of the Bulgarian economy. They reflect the fact that our economy in the current conditions is not able to mobilise its own economic resources to use them effectively and to create the product, necessary for the society to meet its needs.

As to the current account of the balance of payments in 2012, it remains positive in a small interval, i.e. close to zero as a share of the GDP. For 2013 we may expect it to become negative, amounting to 4-5% of the GDP because of the impact of the anticipated activation, albeit at a moderate pace of consumption and investment.

The foreign trade continues to make its fall and the trade balance deficit has increased dramatically. The reasons for the delay in exports are the tight markets and the ongoing crisis in the EU. The increase in imports is related to higher fuel prices and commodity prices, as well as to some movement in the investment activity in the country, caused by the need to renovate the obsolete capital stock during the years of the crisis. Most probably during the current year the pace of import growth will remain higher than those of exports and the deficit situation will deepen.

Foreign direct investments (FDI) for the previous year amounted to about 1.4 billion euro or 3.5% of the GDP of the country. According to the preliminary data in the period January – June, the 2013 FDI amounted to 711.1 million euro or 1.7% of the GDP⁴⁶⁹. The declared interest from the foreign investors so far, gives reasonable expectation for an increase in FDI inflows in 2013 by around 15% to 2.3-2.5 billion euro. However, all disadvantages of the environment known for years (lack of transparency and predictability, credit worthiness of the administrative and judicial system) undermine investors' confidence. A generally recognised fact is that the Bulgarian economy cannot grow without long-term and sustainable FDI inflows and foreign investors need trust and a clear vision for the development of the economy in the long-run. The inconsistency in the decisions of the governments in recent years and the failure to apply economic development measures with long-term effect hinder the process of attracting FDI and the changes in the regulatory framework discourage the investors. Lower taxation can no longer compensate for the increasing administrative burdens in the form of high administrative fees, many unnecessary permits related to additional charge

⁴⁶⁹ [http://bnb.bg/ResearchAndPublications/PubPeriodical/PubStatisticalPublications/PubSPDirectInvestments/index.htm?forYear=2012\(10.08.2013\)](http://bnb.bg/ResearchAndPublications/PubPeriodical/PubStatisticalPublications/PubSPDirectInvestments/index.htm?forYear=2012(10.08.2013)).

and onerous licences. The stimulation of the additional investors interest will depend on the rapid improvement of the quality of the institutional environment in Bulgaria, which is examined in detail in the monograph.

The inflation as an objective economic process directly affects the economic and social life. As a direct participant in the economic life, it usually contributes to a significant change in the ratio between prices and income, shifting the social strata and property differentiation in the society, provokes imbalances in prices, production and employment, and this usually leads to serious disturbances in the economic system. In 2013, it could be expected that it is unlikely to exceed more than 3%, while in 2012 it reached more than 4%.

Problems related to **employment** and **unemployment** emerged as one of the most serious for the Bulgarian economy. As a result of the long-time economic crisis which befell the world, and the inadequacy of the response of society in Bulgaria to the changes taking place, the unemployment and the accompanying poverty in places acquired disastrous proportions. Data on registered unemployment in the regions illustrate the picture of ever increasing territorial imbalances in the Bulgarian economy. The unemployment is slowly killing entire regions. The expectations for 2013 are the unemployment rate to continue to rise or at least to remain at the level of 2012 - ranging around 12%.

The huge **external debt** also appears as a serious economic factor which is a brake on the economy's development. This is because the income generated is primarily directed towards the repayment of debts, thus depriving from financial resources the real sector. From the beginning of the Transition until now, the external debt is a heavy burden on our economy. By the middle of 2013 it amounted to 37 462.1 million euro, which in preliminary data would mean 91.4% of the GDP for the year.

And in 2013, despite efforts at various levels, corruption remains widespread in Bulgaria. This is proved by the data from various national and international researches and analyses. Our country is at the top of various indicators on the perception of the corruption. Leading researchers point out that despite the relatively good macroeconomic indicators of the country, the problem with corruption and not enough reformed and susceptible to political pressure justice system are a serious obstacle not only to foreign investors, but also to the normalization of the business climate in general.

The grey economy also plays a strong negative role in the economic development of the country. Bulgaria continues to hold the championship of the Grey economy

in all European countries – EU countries, Turkey, Norway and Switzerland. This year it is expected to reach 12.9 billion euro, or 31.2% of predicted GDP.⁴⁷⁰

In view of the objectives set, we will restrict ourselves to the indicators that we believe have priority for the creation of the basic economic conditions in Bulgaria. They directly influence the functioning of LPS in the country.

For them, however, the most important are the ways for financing similar ventures.

In the document "National Development Programme Bulgaria 2020" these issues are bypassed, despite their importance. The importance is primarily given to the desire for improving the regulatory framework and its indirect support for the establishment of a stimulating business environment. The State undertakes to implement mechanisms for financial and other support to promote the process of clusters forming, as a main form of LPS. Probably, part of the mechanism will be seeking financing assistance from the EU funds and the state budget. Especially for the creation and development of high-tech incubators, for start-ups, research centres, centres for technology transfer, innovative clusters, technology parks and the renovation of scientific infrastructure.⁴⁷¹

For direct funding, the LPS will rely on the improved access to various financial instruments - JEREMIE, Science Fund (NSF) and National Innovation Fund (NIF) and the improvement of the investment conditions.⁴⁷²

Up to now, there are no real significant state supported initiatives related with that process. However, it is undisputable that the creation and development of LPS is one of the possible tools to boost growth and competitiveness of the Bulgarian economy.

In conclusion, we can state that the low level of development of initiatives related to the creation and functioning of the LPS in Bulgaria is, besides the abovementioned, due to several economic factors. These are: poor business environment, lack of a strong unified scientific community, low level of trust between the private and public sector institutions, etc. There are not any operational mechanisms to ensure fair competition. A working policy for the promotion of the innovations is missing. The main problem in our opinion is that the Bulgarian society lacks not only the consensus, but also the vision for the role and place of LPS to enhance its economic prosperity and welfare. The state rather unsuccessfully plays

⁴⁷⁰ http://www.capital.bg/politika_i_ikonomika/bulgaria/2013/05/07/2055285_sivata_ikonomika_v_bulgariia_shte_dostigne_129_mlrdr/ (10.06.2013).

⁴⁷¹ National Programme for the Development of the Republic of Bulgaria: Bulgaria 2020, p 133.

⁴⁷² Strategic framework of the the National Programme for the Development of the Republic of Bulgaria: Bulgaria 2020 (First draft, 16.03.2012), p.62:

its role as a catalyst which forms the environment and has to create conditions for the stimulation of LPS.

3.2. Political conditions for the functioning of LPS in Bulgaria

The political factors are related to the political system and the public administration activities. Of particular importance in this case is the financial, commercial and industrial policy of the executive power as part of the government economic policy. These factors may be related to the legislation and the political stability in the country, membership in various international and regional organisations, the internal order, the presence or absence of hostilities, terrorism, organised crime, etc. Last but not least, with regard to the LPS the ratio of the central administration towards the regions is of great importance.

Of a political nature are the factors that determine the degree of the government regulation of the economy.

Deliberately we leave aside the political factors related to security and the membership in international and regional organisations. We concentrate our attention on political in nature factors that we believe directly affect the creation and functioning of the LPS in Bulgaria and are characterised by a high degree of uncertainty and instability.

All of these factors are predominantly strategic in nature and often the administration does not have the capacity to deal with problems caused by them. This fact is largely due to objective reasons. They are connected with the contradictions arising from the struggle between the predominantly strategic horizon, (which by definition accompanies the issues related to the impact on these factors) and the activities of the administration, which for the most part are a function of short-term political decisions (with the maximum perspective within a given political mandate).

Throughout the so-called "transition period" a complete model with a clearly defined economic purpose has not been proposed.

The role of the state in the economic restructuring was not determined. The "misunderstood" privatisation and total withdrawal of the state from its regulatory and supportive functions have created and continue to create political contradictions and conflicts.

The legislation – it is undeniable that the social relations in every modern country are legally settled on the basis of the Constitution, laws and the secondary legislation. The problem is that in Bulgaria there is a low level of their conscientiously compliance. Although, all legislation is adopted to meet specific social needs, it is a frequent phenomenon in practice that the interests of the parties concerned are protected. This is partly due to the fact that in its design, implementation and

evaluation often dominate formal legal arguments to the detriment of social, economic, environmental and other arguments. Examples in support of the expressed opinion are the changes of the whole legal framework of Bulgaria within the period of the transition to a market economy and the implementation of the regulatory requirements for membership in the European Union. Unfortunately, these changes acquired dramatic character because of the rapid and unconditional transfer of the European norms in our legal system. It was seen as a prerequisite for closing the negotiating chapters. We have missed the opportunity to create a modern regulatory framework in line with our national specifics⁴⁷³.

Six years after the beginning of the Bulgarian EU membership we are still suffering the results of this high-speed and large-scale restructuring of the regulatory framework. Formally, we have a modern legislation, basically in line with the European one. In fact, there are significant inconsistencies between imported norms and the capacity of the judicial system, the administration and the law enforcement authorities.

It is hard to argue that the state economic policy (if exists and is put into practice in Bulgaria) possesses the qualities of stability and predictability. State economic policy has to provide an analysis of the economic situation, to elaborate its own strategy and the mechanism of its implementation. There is lack of position related to LPS issues in the general economic policy of the country.

The policies presented below are integral elements of the economic policy with a direct impact on LPS. For this reason, we pay them special attention.

The financial policy of the country in general can be defined as very restrictive. It is subject to the ongoing objective processes at national level associated with the permanent shortage of funds and other problems with systemic and structural character, along with the raging global financial and economic crisis. The most significant part of the financial policy is the budget policy. The state budget is the central unit of the financial system and thanks to it every country has the opportunity to focus financial resources in crucial areas of its economic and social development. In the Republic of Bulgaria, the financial policy is administered mainly by the Ministry of Finance and the Financial Supervision Commission. The problem of the creation, functioning and development of LPS, generated by the present financial policy, is the continuous postponement of the fiscal decentralization in the country. **The decentralization policy** aims to redistribute powers, responsibilities and resources in favour of the authorities of the lower territorial levels. The decentralization releases the State from the unaccustomed functions asso-

⁴⁷³ Pashev K., N. Vulev, R. Brussarski.(2007) Impact assessment of the regulations - a practical guide. Association of Management Monitoring, Sofia, p. 7.

ciated with the implementation of operational solutions to local problems and gives opportunity to stimulate the conditions needed for the development of the different society spheres, sectors and for the society as a whole. It also allows the local authorities to comply their activities with the specific needs of the local communities. This is the way to increase the local capacity for efficient problems solving related to municipalities and local businesses. The policy of decentralization must lead to the balancing of management and financial powers. The municipalities must not be overloaded with responsibilities for the provision of certain services, if at the same time management decisions and the resources remain centralised, as the current situation stands in Bulgaria. Moreover, in our country the problems in this area are accompanied by similar ones related to the administrative, political and market decentralization.

Bulgaria's **trade policy** is directly influenced by the relatively small scale of the country, the large share of imports and exports of goods in the GDP, its membership in the EU and CEFTA and many other agreements on trade and cooperation. In view of the results achieved by the trade policy it would seem difficult to be defined as successful as a whole, and in the process of catalysing the creation and development of LPS in Bulgaria.

The industrial policy is a set of actions aimed at developing and improving the efficiency of the industrial production, the competitiveness of the enterprises and their products in the domestic and the international markets. At the moment it does not exist in practice in Bulgaria. We believe that the essence of the industrial policy in a market economy is acquired with the assistance of the state purposeful activities, embedding the system of measures for direct and indirect regulation of the industry and removing the obstacles which cannot be overcome with the mechanisms of the market self-regulation. An effective industrial policy includes measures to ensure competition, regional development, the expansion of cooperation and specialisation of the production, stimulation of the effectiveness and support for the deployment of new technologies. The listed measures are vital for LPS and their lack determines additional difficulties for its creation and development. Despite the quite negative trend, certain capabilities, based on the various operational programmes of the EU, are created to influence positively that development direction. An example of this is that on the basis of the Operational Programme "Development of the Competitiveness of the Bulgarian Economy" during the past programming period (2007 - 2013) grants were provided to 16 beneficiaries under the procedure "Support for development of clusters in Bulgaria".⁴⁷⁴ The same applies for the procedure "Support for the creation and development of

⁴⁷⁴ In: Annual Report on the implementation of the Operational Programme "Development of the Competitiveness of the Bulgarian Economy" 2007 - 2013. (2012) Sofia, 2013.

regional business incubators", which supports 17 incubators. The results of the implementation of these and other similar procedures (associated with the centres for technology transfer, technological parks, etc.) however, would be difficult to be evaluated before 2015.

As regards the relation **Central government–Regions** (the “birthplace” of LPS), apart from the lack of financial decentralization, there are also other problems. In our case something else is missing; something which is essential for giving impetus to the development of the LPS - guaranteeing the autonomy in decision-making and determination of the regional policy. The regional economic activity is the accelerator for the development of LPS. In Bulgaria, local administrations and other institutions, which are expected to create appropriate conditions to attract incoming investments and to liaise with the higher levels of power, implement these functions on an exceptional basis, as a result of specific conditions, but not systematically. The active role of the local government to influence the processes of creation of LPS is extremely limited. Under the complete dominance of the central administration in almost all areas of the public life, not even in the medium term can a substantial change be expected. In the particular case that we are considering, the capacity of one of the efficient instruments of the European common policy - the Operational Programme "Regional Development" remains untapped. This Operational Programme has become the main source of investment funds for the Bulgarian municipalities in times of crisis. However, it seems that the main goal is to survive, without seeking a possible synergy, which if supported by other European funding instruments, will allow reaching a qualitatively new level. This is true not only for the LPS, but also for the entire public life in Bulgaria. One should mention, that the opportunities of the other Operational Programmes, primarily related to the development of the environment at local level, such as the Operational Programme "Environment" are also not systematically interconnected at national and regional level. In this way, it will be difficult to achieve the effect needed to overcome the permanent institutional and economic crisis in Bulgaria.

The specific political environment after the snap elections in Bulgaria this year is extremely unstable and does not help in the fight against the crisis. This is due to the inability to be formed a stable and adequate majority in the National Assembly, turned to the main society's problems. It is a disturbing tendency that political parties try to restructure the state apparatus in such way that it could match only their own interests, often presented as the public ones.

The last factor, which is in the focus of our interest, is the degree of **government regulation** of the economy. We assume that the system of state regulation is a multi-hierarchically organised structure. On its top-level stands a set of measures

of macroeconomic regulation (administrative or market), the main task of which is to maintain the balance in the whole economic system. On the middle level come all the measures of mesoeconomics regulation, including sectorial and multi-sectorial, regional and interregional programmes of development, science and technology, management of the natural resources, protection of the environment and many others. The main task here consists of the sectorial, regional and technological reconstruction of the economy, including its adaptation to the structural problems in the global economy. At the lower level are implemented all the measures of microeconomic regulation. They pursue essentially the same purpose, but at the enterprise level This rather general scheme is rarely implemented in practice and varies considerably depending on the specific conditions and tasks at different stages of development of the countries or of a given group of countries. All these measures in one form or another, and to a different extent, also present in the Bulgarian public practice. Unfortunately, we could not find any of them adapted and designed for the creation, functioning and development of the local production systems.

It appears that the strategic and the tactical initiatives, related to LPS, are left in the hands of the local authorities and businesses. The local authorities and the business rely very much on the implementation of the National Spatial Development Concept for the period 2013–2020. It is expected to provide, along with the National Regional Development Strategy 2012–2022, the necessary working tools for the integrated planning of the economic and social development in Bulgaria. A new adequate economic policy and a new strategy, combined with the necessary political will, will soon give positive results for LPS.

Under the present conditions of severe and prolonged crisis it is time the Bulgarian state to decide on the establishment of suitable structures on the basis of a system for prioritization and allocation of resources. That system has to focus on the activities of the national and local level, which would boost the economic development in the country. The general improvement of the microeconomic factors (among which important is the development of the LPS), the competitive environment, the macroeconomic stability, the social infrastructure and the political climate in the country, combined with adequate utilisation of natural resources is the key to the desired development. “*Think globally, act locally*” is the maxim which has to be followed.

However, our studies lead to the conclusion that in Bulgaria large, organised, united and purposeful activities with economic and political nature are not undertaken by the State and the other stakeholders for the implementation of projects related to the creation, functioning and development of the LPS. Positive examples, if any, are primarily the result of a spontaneous processes of endogenous development and spatial-economic interactions of certain actors. Such entities, on

the basis mostly of accidental rather than deliberate combination of existing natural, economic and human potential, have succeed independently to establish and develop certain type of LPS in Bulgaria. How they managed to do it will be presented in the subsequent papers within the project “Functioning of the Local Production Systems in the Conditions of Economic Crisis (Comparative Analysis and Benchmarking for the EU and Beyond)”.

3.3. Institutional conditions for the functioning of clusters in Bulgaria

The aim of the present study is to propose an approach for analyzing the institutional conditions for clusters’ functioning in Bulgaria (from the viewpoint of the institutional theory) and to determine the key factors for cluster development within a given local production system. Local production systems are traditionally regarded as evolving structures, which react to changes in the environment, but the mechanisms of their reactions are determined by processes internal for the systems. The environment of the local production systems, their components, elements and structure are presented from the perspective of the modern institutional theory.

In that context, the concept “institution” has been adopted by the economists from the social sciences, in particular from sociology, political philosophy and social psychology. In the economic theory, the concept “institution” was included for the first time in the analysis of Thorstein Veblen.

An institution in general, reflects a common way of thinking (stereotype thinking) about the relationships between society and the individual and the performance of their functions. It builds-up a system of social life comprising a set of activities at a certain time or at any moment in the development of every society. From a psychological perspective the institution can be described as the prevalent spiritual attitude (mindset), or as a general understanding of the way of life in the community⁴⁷⁵.

Within the framework of the contemporary institutionalism, the interpretation of the institution by Douglas North is the most widely spread: an institution – these are the rules, the mechanisms, which ensure their application and the norms of behaviour, which structure the repeated interactions between the individuals⁴⁷⁶. This set of rules, mechanisms for their enforcement and control over their observance, builds-up schemes and matrices of behaviour of the individuals and forms the institution.

⁴⁷⁵ Veblen T. The Theory of Leisure Class. M., 1984. pp. 201-202 (in Russian)

⁴⁷⁶ North D. Institutions and Economic Growth // Thesis. Vol.1. Issue 2. M., 1993. pp73. (in Russian)

The concept of “institution” and “organisation” are interrelated. According to Douglas North the institutions are the rules of the game, and the organisations are the players. In their activities organisations follow the rules of the game, but cannot influence them. In spite of that, their aim is to win the game, and not to regulate it.

In accordance with the institutional theory, the rules (formal and informal) are some kind of norms, deliberately introduced restrictions, which are observed, can be observed or followed by large groups of people, or as T. Veblen calls them “habits of thought”⁴⁷⁷. These are widely accepted and protected guidelines, which forbid or permit a certain type of activity of an individual (or group of individuals) in their interaction with other individuals or groups. The rules, making up the institutions, make sense only when they are accepted by more than one individual. From that perspective, each institution is a set of certain rules, but not every rule is an institution.

According to Elinor Ostrom⁴⁷⁸, the rules determine what actions or situations are necessary, forbidden or permitted for the participants (organisations or individuals).

The rules include:

- possible roles of the participants;
- the position the participants and the order in which it changes;
- the actions, which the participants can, are obligated or are not obligated to undertake;
- the results, which they can, are obligated or are not obligated to achieve.

The rules set the framework within which the participants make a choice, and do not prescribe or impose the choice. The rules stipulate:

- the set of roles and the number of the agents, which can perform a certain role;
- the technology of the choice, among the participants who are candidates for one or another role and the change of the positions;
- the result and the costs of the alternatives;
- a set of strategies accessible for the participants in a certain role in the interaction with the other participants;
- the function of making a decision for each situation;
- the permitted channels and forms of communication among the participants, which perform one or another role.

By means of the set of rules a classification of institutions can be made in terms of: the obligation to observe the rules – formal (official) and informal (unofficial);

⁴⁷⁷ Veblen T. The Preconception of Economic Science. – I-III. In: Veblen T. The Place of Science in Modern Civilization and Other Essays. – N.Y.: Russel and Russel, 1961. - P. 143, 157.

⁴⁷⁸ Ostrom E. Governing the Commons: The Evolution of Institutions for Collective Action, 1990); pp. 86-89.

the hierarchy and the various aspects of social development – economic, political, legal and social⁴⁷⁹.

The informal (unofficial) institutions are the unrecorded habits, traditions and stereotypes of behaviour. Such as, for example, the principles of business and professional ethics, religious precept and customs, or ideological formulations. The preservation of the informal institutions is related to the culture, which, in terms of our analysis, can be seen as a set of values and norms that determine the behaviour of the individual. As advantages of the informal institutions we can consider: 1) the possibility of adaptation to the changing conditions preferred inside the community and other exogenic and endogenic changes; 2) the possibility of imposing various sanctions in each particular case.

The shortcomings of the informal institutions lie in the fact that they are often characterised by varying interpretation of the rules, by impairing the effectiveness of the sanctions, and the emergence of discriminating rules.

Formal institutions are the written laws. The main difference between the formal and the informal institutions lies in the extent of their manifestation. The extent of manifestation of the formal rules is related to their written character and the presence of experts engaged in controlling their application. The significance of the formal institutions increases with the more sophisticated division of labour, and respectively, with the more complicated nature of the social structure. Their importance is strengthened by the fact that they are related to the generalization and fixation of the great variety of specific rules. Subordination to the rules is expressed through the hierarchy of the normative acts, passed by the bodies of the executive power. On that basis the law determines the principles and strategies of behaviour, and bylaws specify these principles as a mechanism of action. The general rule is that norms of lower order specify and reveal the content of the norms of higher order.

The advantages of formal rules are: 1) the formalisation of the rules makes it possible to broaden their normative function. That allows individuals to reduce costs for increation, makes the sanctions for breaking these rules understandable, and eliminates the controversies they contain; 2) formal rules can counteract discrimination; 3) formal rules provide a mechanism for dealing with those individuals, who as members of the society gain certain benefits, but refuse to bear the costs related to them.

The classification in terms of hierarchy, or the interaction individual - institution can be built on the basis of the 3-level scheme of analysis proposed by Oliver Williamson. At the first level there is the interaction of the individuals. At the

⁴⁷⁹ Kolev, Ts., Economics Basis and General Theory (2011)

second – of the institutions of various types, which are institutional arrangements. At the first level are those that form the institutional environment⁴⁸⁰.

According to the terminology proposed by D. North, an institutional alliance is an agreement between an individual and/or a group of individuals, or business entities. That agreement determines the ways of cooperation and competition. The institutional environment is a combination of underlying social, political, judicial and economic rules, defining the frame of human behaviour and institutional arrangements. Components of the institutional environment are the rules of social life, the functioning of the political sphere, fundamental legal norms such as the Constitution, codes, laws, etc.

Within the institutional environment there can be supraconstitutional, constitutional and business rules, as suggested by Douglas North.

All components of the institutional environment are rules, determining the order and comprising “subordinate” rules. Similar “metarules” can have both formal and informal character. The general and difficult to change informal rules, which are deeply rooted in the history and life of the different peoples, the prevalent stereotypes of behaviour, religious beliefs and cultural specifics, which often are not even realised by the individuals, are called *supraconstitutional*. They determine the hierarchy of values, shared by the society as a whole, the attitude of the political power, the psychological mindset of cooperation or confrontation, of social status, etc.

The Constitutional rules perform two important functions. In the first place, they set the hierarchical structure of the state and, secondly, set the rules for decision-making about the creation of the bodies of state power. The Constitutional rules can have both formal and informal character. For example, the rules about the succession of power in monarchy can have the form of unwritten custom or tradition, and the rules for voting in the election of a legislative body can be described in detail in a law or a code.

The rules, which directly determine the forms of organisation of the business activities, are called business rules. These are the general framework, within which business agents form institutional arrangements and make decisions about the use of resources i.e., cooperate or enter into competitive relations. At the basis of the business rules are the rights of property and responsibility.

⁴⁸⁰ <http://portal.agun.kz/e-books/content/IN8GxS9yXZch6dxMUbPm/pages/Tema2.6.htm>

3.4. Intellectual property objects protection for the purposes of their economic realisation

The concept of intellectual property clarifies the content of the term intellectual property, its systems and subsystems and their objects, the conditions for legal protection, scope of the protection, forms of management and economic results, such as a commercial monopoly and extra profit.

The concept of intellectual property emerges in times of strong technological and cultural progress when the results of creative activities is materialized into products of intellectual labour such as inventions, works of literature, science, art and more. The highly industrialised economy is taking labour as a factor for economic growth. A question arises, which labour - physical or intellectual, contributes more to the value of the product. The ownership over the results of physical labour in the sphere of material production is settled by property laws. The settlement of the ownership over intellectual labour results raises a number of questions, and the search for answers to those questions leads to the emergence of the concept of intellectual property. This concept is based on the characteristics of the intellectual product that features with creative way of production and also economic utility (material expression), and also owns creative, aesthetic, ethical, innovative, original and cultural utility- initially for its creator and later, after its economic realisation for society as a whole.

Principles in the protection of intellectual property objects for the purposes of their economic realization

Intellectual property objects are protected by intellectual property rights. Intellectual property rights for different objects occur under various conditions. However the protection is a subject to some basic rules. For industrial property objects (technology innovations - product or process protected by inventions; distinctive signs protected by trademarks and geographical indications; appearance of the product or the company protected by industrial or corporate design) it occurs after a registration procedure and issuance of a protective document such as a patent or a registration certificate. An exception to that rule in the system of industrial property is the subject know-how. For it the intellectual property rights arise from the moment when the used know-how is becoming essential to the functioning of the business. Then it becomes a trade secret and the protection is provided not with a protected document but by taking measures for protecting the secret as confidential. For example, the business functioning of Coca-Cola where the formula for production is also a trade secret of the Coca Cola Corp.

For objects of artistic property, the intellectual property rights arise from the creation of the work or the time of its introduction, audio or video recording. Intellectual property rights for objects created and managed in the cultural sector are

called: *copyright that occurs* for works and *rights related to copyright*, which arise for performances, audio recordings, video recordings and broadcasting programmes.

Intellectual property law is homogeneous and as such has both proprietary characteristics and economic characteristics. The homogeneity of the intellectual product associates it with the category of ownership, but ownership over intangible objects, not over things. This characteristic differentiated the intellectual property rights as an *absolute right of ownership* over the object of protection. Similar to the ownership over things.

This is how the term intellectual property arises, indicating the existence of ownership over the intellectual results of a creative activity. Intellectual property becomes an economic resource, competitive advantage and a means of economic goods precisely because of the unique intangible nature of the objects using its protection. Nevertheless, intellectual property is an economic category of property, but the property is not over objects with tangible physical nature, but over intangible objects (the results of creative activity). There is a difference between objects with intangible character and services to which have inherent intangible characteristics. The difference is that the type of service is repeated and is the same each time it is supplied and used, but intellectual labour and creativity do not have repetitiveness in their results. The intangible part in the object is contained in the innovative creation it carries that can be used simultaneously by several people at the same time in several different ways. For example, the franchising of McDonalds.

The economic characteristics of the intellectual property law present it as an economic category of ownership. The intellectual property law gives its holder the *exclusive right* to use the object of intellectual property and to permit (licence) others to use the object against consideration. In the composition of this right is the power of the holder to prohibit third parties from using the object illegally.

The economic nature of the intellectual property law defines it as an *exclusive right*. The exclusive nature focuses on who is the holder of the intellectual property rights, i.e. who is the person who may exclusively economically use the object through its production and trade. Usually the holder of intellectual property rights is the creator of the object (the inventor, author, etc.), but under certain conditions it may be a person, different than them.

With the emergence of the intellectual property rights its holder is granted a trade monopoly. The trade monopoly is a public expression of gratitude for the opportunity of using the invention to satisfy public needs. To avoid misuse of the trade monopoly and to protect the public interest, it is limited in time and territory. For each intellectual property object trade monopoly acts differently in time, for ex-

ample for inventions the duration is 20 years from the date of filing for a patent. The operating principle of trade monopoly is that it acts as long as the protective document is valid and for the territory for which that document is granted. The trade monopoly is granted only for production and marketing of the object of protection and his specimens. With the expiry of the protection the effect of the trade monopoly shall be terminated.

Administration of the system of intellectual property

The international administration of the system of intellectual property is carried out by the World Intellectual Property Organisation (WIPO) under the provisions of numerous international acts in this field. Its administratively functioning is based on the priorities and principles of the two statutory acts: Convention Establishing WIPO and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). With the Convention Establishing WIPO the system of intellectual property is created, and with TRIPS fundamental issues related to the commercial aspects of intellectual property are regulated.

Organisational and administrative activities on international level in the field of intellectual property are carried out by the World Intellectual Property Organisation (WIPO), which is one of the specialised agencies of the United Nations (UN). This international organisation is a forum for discussion and unification of the main points in national policies of the member-states of WIPO involved with international trade and protection of intellectual property objects. The creation of WIPO is inspired by the needs of the international unification of the issues related to the protection, management and marketing of intellectual property. The differences in the national laws of industrialised countries such as Germany, France, USA, Russia and other countries in transition and less developed countries, led to the achievement of an international agreement in 1883 through the signing of the *Paris Convention for the Protection of Industrial Property*, which covers some of the basic principles in the field of intellectual property. The same reason entails the signing of the *Berne Convention for the Protection of Literary and Artistic Works* in 1886, objects that are outside the scope of "Industrial Property".

States, parties to both Conventions respectively, create the Paris Union for the Protection of Industrial Property and the Berne Union for the Protection of Works of Artistic Property. To coordinate their activities two secretariats are created, which in 1893 are merged into a single international agency called BIRPI (The United International Bureaus for the Protection of Intellectual Property) or in French BIRPPI (Bureaux Internationaux Réunis pour la Protection de la Propriété Intellectuelle). The harmonisation of the activities of the two unions in 1967 led to the signing of the Convention Establishing the World Intellectual Property Organisation, which is settled in Geneva. The organisation is self-supporting and is

funded primarily from fees paid by applicants for international registrations of industrial property objects. Bulgaria is a member state of WIPO.

At national level the intellectual property system is administered by the various competent institutions in different countries. Nevertheless, there are relatively constant principles of national administration. In the field of innovations, trademarks, geographical indications and industrial designs the protection of the objects is administered by the National Patent Office. As to the object know-how, which is protected by taking measures for keeping the secret confidential, the protection has the same scope as the intellectual property rights granted by issuing a protective document (patent). The difference is in the administrative procedure of accession of rights and their defence. In objects that require registration, the Patent Office is competent, and in know-how the competent organisation is the Commission for Protection of Competition. This is because the defence against infringed protection (secret) is for *unfair actions* leading to unfair *espionage*, unfair *disclosure* and unfair *use* of another's trade secret.

In the field of artistic property the national administration is carried out by the Ministry of Culture.

System of intellectual property

The system of intellectual property covers intellectual property objects and the types of their protection granted by the law of industrial property, copyright and related rights and the so called special right "sui generis". The intellectual property system is composed of three sub-systems: industrial property, artistic property and new objects. Each of them is characterised by certain features common to both the objects and their protection.

The intellectual property system is composed of three sub-systems, each of which governs the economic and legal status of the objects united by certain signs. These are the intellectual results, which, if they answer to certain social criteria, are recognised as objects of intellectual property. The person who invested creative and intellectual effort to create them is granted the exclusive right of intellectual property.

The economic characteristics of the intellectual property rights are present in their outstanding character and expressed in the acquisition of legal trade monopoly and the ability to generate additional profit.

Sub-system of Industrial Property

Development: Following the Industrial Revolution in 1624, England became the first country that begins to settle the rights of the creators of creative products. The first act that legalised granting privileges to the creators is with the Statute of Monopolies. Privileges are presented in the form of exclusive right for the creators of technical solutions to use them for a period of 14 years and to prohibit any

third party to use them. The Statute of Monopolies is an act which governs the rights of the creators of industrial property products, such as inventions and utility models, which later are differentiated as the first objects of Industrial Property. At the same time innovation enhances trade relations, which leads to the emergence of other intellectual property objects such as trademarks, geographical indications, know-how and industrial design. Proactive market environment creates conditions for increased competition. To limit the possibilities for abuse with industrial and trade monopoly, unfair competition is established as an independent object of Industrial Property.

The Statute of Monopolies lays the foundation for all subsequent legislation in the field of Industrial Property. With the increase in its objects there is an increase in the legislative initiatives. Many industrialised countries followed the legal principles laid down in the Statute of Monopolies, and as a result the first patent laws have been developed and adopted. The Patent law in Russia was adopted in 1870, Germany - in 1877, the U.S.A. - in 1790, and France - in 1791. Although the core of the patent laws in different countries is based on the main principles of the Statute of Monopolies, they are consistent with the characteristics of the national economy. The differences in legislations were difficult for international economic relations in the field of Industrial Property and so in 1883 the Paris Convention for the Protection of Industrial Property, which unifies some basic principles, was adopted. Thus, the signing of this international treaty provides a new beginning for the development of the sub-system of Industrial Property.

Scope of the Industrial Property

The Industrial Property protects the intellectual achievements in science and technology. They are potential industrial property objects until it is duly established that they meet the criteria for recognition of objects of intellectual property. The objects in the sub-system of Industrial Property can be conditionally divided into objects related to production and those related to marketing of the product. Objects related to the production of the final product are inventions (product and process innovations), utility models or industrial and technological know-how. Intellectual property objects primarily related to marketing of the product are industrial designs, trademarks and geographical indications.

The objects in the sub-system of the Industrial Property recognised under the provisions of the Paris Convention as the main international instrument in the field, are:

- Inventions;
- Useful model (utility model);
- Industrial design;
- Trademarks;
- Geographical indications;

- Know-how;
- Unfair competition.

Each object of the Industrial Property is self-defined as a concept, regime for protection, regime for use and regime for management in the various national legislations. In some cases the national legislation, such as the Bulgarian one, perceives the attributes of the properties and the classification criteria characteristics of the objects. For example, inventions and utility models are legally regulated by the Law on Patents and Utility Model Registration. This grouping is due to similarities in the specificity of the two objects – for example the utility model is called little invention. In some cases the legislation has adopted the concept of the utility model, which is completely identical to the concept of the useful model under the Paris Convention.

One of the most economically important objects of the industrial property is the invention. Although most national laws do not provide a definition of invention, its description is done by reference to the criteria for determining which intellectual achievements are considered inventions and which are expressly denied protection as such: "Not considered inventions are discoveries, scientific theories and ideas, as well as...". Scientific discoveries are present in the system of intellectual property, although not recognised as objects of protection. They are seen as a necessary prelude to the creation of innovation and often are the research basis over which the inventor demonstrates creativity in an area of the economy. Therefore, the scientific discovery could serve as an "increation resource" with scientific nature for the creation of technological innovation - invention. The scientific discovery is not an invention, as it is a law, feature, phenomenon or regularity, which objectively existed in reality but was unknown and inaccessible for inspection until it was discovered.

The innovation as invention represents a new technical solution to a task of any area of the economy, which meets the criteria of patentability and is not explicitly excluded from the scope of protection of intellectual property rights. As for the utility model it is treated as a little invention. The invention is a major subject of intellectual property, as it is directly related to the scientific and technological progress as the main engine of the economic growth. To be protected as an invention the innovation must meet certain criteria such as: has a *world novelty*; involves an *inventive step* and is *industrially applicable*. The world novelty criteria refer to the requirement that there is no filed application for protection and no patent has been granted for the same invention, at the time of its filling for an application for protection in the Patent Office.

The criterion for *inventive step* is a requirement for the innovation to contain something absolutely new to the area of its creation (such as technique), which is

not known even to the experts in the field. The knowledge of the pre-existing innovation known to the experts in the field, forms the so-called *state of the art*. In general, it includes all applications and granted patents for inventions in the same field. When the claimed invention is found to contain increation, which is not part of the state of the art, then this new increation represents an inventive step. Precisely for it, protection is provided through the issuance of a patent, by which the intellectual property rights start to exist. Once the innovation is patented and recognised as an invention, its inventive step becomes part of the state of the art. Therefore, each innovation should be upgradeable with respect to the previous one. This process is called *scientific and technical progress*. Therefore, innovation-oriented economies are fast-growing industrial economies. The last criterion - the industrial applicability, is related to the ability of the invention to meet and satisfy public needs. For this to happen, it is necessary that the invention may be reproduced industrially, i.e. to develop a production. To meet the societal needs through production and trade, the holder of intellectual property rights is granted trade monopoly through the issued patent. The trade monopoly is the obligation and right of the holder to use the invention, as it is understood to produce and trade with it. The use can be fulfilled through licensing. When the object is not used by the holder of the trade monopoly it may be withdrawn, including to the benefit of another person. The reason for this to happen is that the non-use of an object of intellectual property is considered a misuse of the trade monopoly is an unacceptable phenomenon in the market.

Utility models are structural and technical features of a product, which relate to the improvement of the structure, shape and spatial combination of the elements of it as a product, tool, device, apparatus or technical parts, materials and others with industrial or household purposes.

Trademarks and Geographical Indications as objects of the Industrial Property are also regulated by the provisions of a special legislation – Law on Marks and Geographical Indications (Trademark Law). The provisions of the law express the economic characteristics of the trademarks as signs that are capable of distinguishing the goods or services of one person from those of other persons and can be represented graphically. Such signs may be words, including the names of persons, or letters, numerals, drawings, figures, the shape of the article or its packaging, a combination of colours, sound signals or any combination of such elements. There are different types of marks – a trademark, a service mark, a collective mark or a certification mark. The Law on Marks and Geographical Indications clearly defines the importance of the object geographical indication as an appellation of origin or indications of source. An appellation of origin is the name of a country, or of a region or locality in that country, that serves to designate goods originating therein whose quality or characteristics are due essentially or exclu-

sively to the geographical environment, including natural and human factors. An indication of source is the name of a country or of a region or locality in that country that serves to designate goods originating therein whose quality, reputation or other characteristics can be attributed to that geographical origin.

In the sub-system of the Industrial Property the Industrial Design represents a self-regulated legal object, defined in the Law for the Industrial Design. In the sense of this law, industrial design is the visible outer appearance of a product or part of it determined by the peculiarities of the form, the lines, the depiction, the ornaments, the colour blend or a combination thereof. It can get the so called cumulative protection as an object of Industrial Property and as an object of Artistic Property. As an object of copyright, the design is considered to be a work of art and cannot be reproduced industrially.

Unfair competition is a separate object of protection and means of protection of objects of industrial property. As an object of protection unfair competition is related to the object know-how, which represents knowledge, skills and experience of doing something, i.e. it is a production, organisational, management or other technology. When this technological invention is of economic importance to the operation of the business in a commercial enterprise, it becomes a trade secret. Unfair competition is also the only way to protect know-how and trade secrets; an alternative way of protecting patentable or not-patentable inventions, utility models, industrial designs or trademarks (if they are unregistered well-known trademarks); as well as complementary means of protection for the special protection provided under the laws of patents and utility models, marks and geographical indications and industrial designs. The Law on Protection of Competition is an independent statutory act that governs the legal aspects on issues related to unfair competition, monopolistic and dominant position and concentration of economic activity. Unfair competition is any action or omission when carrying out economic activity, which is contrary to good faith commercial practices and damages or may damage the interest of competitors and in their relations with consumers. It is thought that the most common violations are related to the rights of another's trademark and trade secret.

Sub-system of Artistic Property

Development: the artistic property notion appeared in the VI century, when an Irish monk named Columbanus copied the literary work of abbot Finnian, called "Psalms". By his actions the monk infringes the copyright of the creator of the work, because he reproduces "Psalms" without prior consent and without paying remuneration for this. The Artistic Property and the copyright protection of its objects actually occurred with the advent of the printing technique that allowed rapid and repeated copying of literary works without them having to be rewritten.

The activity exercised by printing guilds necessitates the need to develop rules for the protection of the artistic property, which would provide them with privileges by the competent authorities of that time. This dynamic in the rights in the cultural sector led to the adoption of the first copyright law in 1709 – The Statute of Anne.

This law aimed to promote knowledge and to guarantee the rights of artistic property over copies of books of their legal authors. The principle formulation of the Statute of Anne said that only the author of the book can entitle its printing and publishing for 14 years from the date of the first publication. In the 18th century France established as a cultural centre. This led to the creation of a numerous associations for copyright protection in 1777. The German philosophical school considers that copyright is not only an opportunity for economic benefits for the author or holder of rights, but also a continuation of the author's personality. This is how the concept of moral rights for the author over his work was developed. Later, these rights are defined as a separate group in the content of copyright along with the economic rights of the author under the name of non-pecuniary (moral) rights. The Artistic Property is governed by the system of case law (USA) as a form of ownership that can be created by a person or by a group of persons and is a subject to commercial use in the same way as any other form of property.

In countries with a civil law system, such as Germany, France and other European countries, the Artistic Property represents the ownership over creative works with intangible nature, such as science, literature and art. Copyright protection is granted to the economic aspects of this property, but with the philosophical concept of the moral rights of the author. This requires the settlement of copyright content as a set of economic and moral rights of the author.

Scope of the Artistic Property:

In the scope of the artistic property there are works by known authors and known moment of creation or publication, as well as revised works whose author is unknown, but they are an expression of collective creativity (Folklore).

Folk-art and folklore in particular are specific objects to copyright protection. They are excluded from direct protection but may receive indirect protection in certain circumstances. Folklore works receive copyright protection indirectly, after its submission or processing, i.e. when it is used to create a work. Folklore works are a specific object of Artistic Property, as they are not the result of an individual but primarily of a collective creativity. Folklore works are tales, legends, myths, and other forms of literature, music, dance, traditions and ceremonies. Scientific and technical knowledge can also be accepted as folklore works (technology, methods, and ways of doing something) and any other forms of art

that are transmitted by tradition from generation to generation. In terms of folklore works, indirect copyright protection is granted for:

- translations and adaptations;
- arrangements of musical folklore works;
- collective works that incorporate two or more works or materials. In this case it is assumed that the folklore works are a combination of materials;
- works of national crafts;
- unpublished work when it is used to create a new derivative work. The unpublished work may be a national folk-art work the use of which is in the form of adaptation;
- performance of folklore works, where the performer is granted with neighbouring rights.

The specific nature of folklore works as an object of intellectual property requires special administration.

Objects of the Artistic Property are any literary, artistic and scientific work resulting from creative endeavour and expressed by any mode and in any tangible form. Objects are grouped in the following way:

The group of *Original works*. They are a spontaneous expression of the author's creativity and originality reflected through his perception of reality. Original works are:

- literary works, including works of a scientific and technical literature, of publicity and computer software;

In some national legislations (Europe) computer programmes are protected as literary works and in other legislations they are patented (USA). The reason they can be protected with copyright is the analogy made with the arrangement of zeros and ones in the source code of the programme with the arrangement of letters in sentences. When developing a computer programme using open source code the author of the code needs to be notified.

- musical works with or without lyrics;
- performing arts works such as dramatic or dramatic-musical works, pantomimic, choreographic, etc.;
- films and other audiovisual works such as advertisements, videos and others;
- works of fine art, works of applied art, design and national artistic crafts;
- works of architecture;
- photographic works and works created in a manner analogous to photography;

- projects, maps, charts, plans, and others related to architecture, urban planning, geography, topography, museum and any area of science or technology;
- graphic design of publications.

The second group of works, objects of copyright protection is the so called *Secondary works*. These are reworked originals in which the main features of the revised work can be seen. Secondary works have their own author. Their creation is onerous and must be preceded by the permission of the author of the original work. Secondary works are as:

- translations and adaptations of existing works and works of folklore;
- arrangements of musical works and works of folklore;
- periodical issues, encyclopaedias, collections, anthologies, bibliographies, databases and other similar subject matter including two or more works or products.

Collection Works. Collection works are the third group of objects of copyright protection. They are a combination of different copyrighted works or works and materials to which there is no copyright. Copyright arises for the person, physical or legal, who collected, arranged and published the collection work.

Collection works are: periodical issues such as newspapers and magazines, encyclopaedias, collections, anthologies and databases. Databases are specific object of copyright protection. The protection is provided for the compilation of data, i.e. the manner of their arrangement, not the data itself. Often databases are not an expression of spontaneity in the creativity of the author, but are the result of a contract, so the warrantor is provided with the so called "special rights". These special rights are called "sui generis" and they are provided to the investor of the databases as the right to use them free of charge for the purposes for which they were created. Sui generis right of the investor is not contrary to the copyright of the author over the databases.

Independent object of copyright protection is also *part of the work* and preliminary sketches, plans, etc. The part of the work to be subject to protection must be essential to the content of the work. For example, the title of a movie is not part of the work and cannot be self-protected by copyright.

Copyright protection for objects of Artistic Property is granted for the objective form of the work, not for the ideas expressed by the authors in it. Once the idea is expressed in a tangible form, there is a protection for the words, musical notes, drawings and other means of expression with which the idea was presented to the audience.

Copyright protection is granted for the originality of works. Originality is sought in the process of creativity, without needing the ideas to be new cultural content. Originality is sought in the way of presenting and in the objective form of the work, i.e. in the used expressions rather than in its content, even though the creativity can be represented right there. Basic expressions are:

- composition - represents alternating different elements of the work;
- genre - represents the content of the work, how it concerns the described world, without being distorted (the genre is connected to the form of the work - comedy, tragedy, drama, also there are mixed genres that are combinations of these. The genre is the emotional attitude of the artist to the reality);
- language - represents speech, reciting a poem, a narrative poem, an ode, oratory in front of scientific audience, singing a piece of music. Language as a means of expression is characteristic especially for literary works;
- colours and design and their combination when they add uniqueness to works of art and works of applied art;
- notes - represent an expression of musical works;
- movements - represent a combination with the audio, when ideas are materialized in performing and in audio-visual works.

In order for copyright protection to occur for the work, besides being original, it must also be publicly disclosed incl. publication by the author or with his permission by an authorised person. Copyright protection does not depend on the cultural value of the work. The work receives protection regardless of the public evaluation of its quality parameters. Copyright protection arises automatically from the moment of creation of the work. Copyright is a set of economic and moral rights of the author so he can economically realise the work. The right is transferable and heritable. Copyright shall be protected for the life of the author and seventy years after his death. The area of protection is within that of commercial distribution of the product and his specimens.

The following objects will not be considered as protected with copyright:

- normative and individual acts of state government bodies and their official translations;
- ideas and concepts;
- works of folklore;
- news, facts, invention and data.

The sub-system of Artistic Property includes the objects of rights related to copyright. Related rights emerge from the economic realisation of the work. Without a copyrighted work and without its use there cannot be an object of related rights.

Objects of related rights are performances of performing artists; phonograms of producers of phonograms; movie records of movie producers; and programmes of radio and television organisations. Holders of related rights are respectively: performers; producers of phonograms; movie producers; radio and television organisations. The consent of the author must be sought before using the work in a performance, recording, or include it as part of a broadcasting programme. Related rights arise from the moment of finalization of the performance and recording of the work and provide protection for a period of 50 years. Related rights are transferable and inheritable. In their content, related rights cover the economic and moral rights of the holder. The use of objects of related rights is carried out with the consideration and authorisation from both the holder of related rights and the holder of copyright.

Sub-system of new objects to intellectual property

Development: With the adoption of the Convention Establishing the World Intellectual Property Organisation a third sub-system of intellectual property objects, the so called new objects of intellectual property were added to the already established two groups by the Paris Convention for the Protection of Industrial Property and the Berne Convention for the Protection of Literary and Artistic Works. The emergence of these new objects is a result of the technical and scientific progress, the rapid development of the digital technology and the need for regulation of the new intellectual achievements including those created and managed in the digital environment as objects of intellectual property.

Recognised new objects of intellectual property are:

- *Topology of integrated circuits.* The object of protection is the topography of the integrated circuit, not the circuit itself. According to the Law on the Topography of Integrated Circuits, topology is understood as the way of arranging the elements in the integrated circuit. The definition of an integrated circuit reads: a product in its final form or an intermediate form, which is intended to perform functions of generating, transmitting, receiving, processing and/or storing information, and in which the elements and some or all of the interconnections are integrally formed in and/or on a common substrate.
- *Multimedia technologies.* The scope of digital technologies includes computer programmes, databases and multimedia products. So listed, the new technologies are also protected with artistic property.
- *Biotechnological products such as genetic engineering, new plant varieties and animal breeds.* This new object is legally regulated nationally and internationally through the Convention on Biological Diversity of 1992 and the establishment of the International Union for the Protection

of New Varieties of Plants (UPOV) based on the Convention for the Protection of New Varieties of Plants and Animal Breeds. Biotechnological products are a discussion matter about the appropriateness and form of their protection. If it is determined that they can be protected, the holder of the exclusive right should be careful not to change or endanger the public interest by the use of the biotechnological products.

- *Traditional knowledge.* This is knowledge, skills and practices that are developed as a results of intellectual activity of a nation in the field of genetic resources and traditional artistic creativity, traditional medicine, methods of treatment of humans and animals, breeding of plant varieties and animal breeds; intangible national folk-art such as songs, dances, rituals and sign language works (folklore); and material art, such as national handicrafts (carving, ceramics, embroidery, pottery, leather, etc.) traditionally practiced in time and passed on from generation to generation. As a result of their use and commercialisation, traditional knowledge can be transformed into modern knowledge as a product of modern science and technology. The protection of traditional knowledge up to the development of a unified sui generis protection is provided by the usual unwritten rules most often by keeping the knowledge secret.

The objects of intellectual property called *new objects* evoke strong debatable activity because they raise questions not only of an economic character, but also ones of a moral nature. It is right to encourage the inventor of the method for cloning in response to the possibility to satisfy public needs by cloning human organs and their intended use for medical purposes. From the moral side, however, is the granting of trade monopolies through intellectual property rights for such biotechnological invention in the hands of one man or one industry, appropriate with regard to the protection of the public and his personal interest. All these of controversial questions with ambiguous answers appear to be big challenges of the intellectual property system and for the balance between the public interest of production and the private interest from gaining additional profit and all of this in terms of moral measures and active business environment.

3.5. Social conditions

The social conditions in which the local production systems function depend on many factors and are formed by the interaction between different stakeholders. Universities are increasingly recognised as key partners in state and local efforts for economic and social development of countries and regions, and in some instances they are actively engaged in initiatives to encourage the development of clusters as a form of LPS. Understanding the role of the university requires a suitable framework for research. In this part of the monograph the role of the *univer-*

sity will be considered as a “regional factor” which builds relationships in collaboration with other LPS stakeholders thus contributing to the economic and social development of the region.

There are three generally accepted dimensions in which the universities contribute to their local economies. Firstly, the universities have an impact on the economic and social development of the region through their purchasing power - procurement, employment and income. However, this economic and social contribution is not related only to the universities. The impact of the universities through their purchasing power and workers skills improvement are trivial effects and they cannot completely transform the local economy.

The second dimension is the traditional function of universities in expanding human capital through education and training. The theory and practice accompany this important function of the universities. The universities’ impact on the development of LPS through education and training of specialists in different fields is demonstrated. The only problem is that when universities improve their human capital, they make it more mobile. People with higher levels of education often pursue careers outside the region, sometimes outside the country. When the region does not have a stable economy and labour market, these graduates leave the region and often the country.

In Bulgaria, there are many universities and graduates in different fields, but most of the graduates leave the boundaries of the region, and also the country; better trained staff is concentrated in Sofia, because of the economic underdevelopment of the other municipalities in the country. During the economic crisis this trend increased. If regions want to maximize the human capital benefits provided by the universities it is necessary to consider the final aspect of how universities contribute to the development of local economies. Through their essential role in education and training, universities are creators of knowledge, sources of innovation and generators of economic development. This is the third dimension in which the universities have the greatest potential to affect the economic development. This is the role that universities perform through the technology transfer process - one of the formalised links between the universities and the industry. The technology transfer can be defined as “the transfer of the results of basic and applied research to design, development, production, and commercialisation of new or improved products, services, or processes.”⁴⁸¹ The technology transfer became more formalised as a function of the universities in the late ‘70s, and is becoming increasingly important source of revenue for universities across the country, a stimulus to the

⁴⁸¹ Gary Matkin, “Organizing University Economic Development: Lessons from Continuing Education and Tech Transfer,” in *The University’s Role in Economic Development: From Research to Outreach*. (Jossey-Bass, June 1997).

regional economy and a method of bringing research into practical use. Initially, the technology transfer is understood as mainly related to patenting, it now includes licensing, research consortia, industrial extension (technical assistance) programmes, industrial-liaison or affiliates programmes, spin-off enterprises, research parks, start-up company incubators, consultant services, and venture-capital funds.⁴⁸² The technology transfer can also include the spread of knowledge through more informal means, such as meetings between academics and industry professionals.

The universities in Bulgaria are using various forms of technology transfer, as they are different for the different universities. We believe that in Bulgaria the technology transfer is mainly accomplished through informal means such as meetings between academics and industry professionals, consultants and also through the development of programmes and strategies of municipalities, regions and etc. More active forms of the technology transfer (patents, licensing, research consortia, industrial extension (technical assistance) programmes, spin-off enterprises, research parks, start-up company incubators, etc.) that contribute to the development of LPS are still very poorly developed or absent in Bulgaria:

The main challenge, regardless of the form of technology transfer, is how to achieve a mutual benefit for the university and the region, which requires a better understanding of the role played by universities. Universities are an excellent resource for transforming the economy through the creation of new industries, but the ability of these industries to grow in the region is related not only to the nature of the university, but also the character of the region, the state and the industry itself. In this context, it is the widely popular three-dimensional model constructed by Loydesdorff and Etzkowitz⁴⁸³, which characterises the relationship between industry, university and government. According to these authors, to make the universities more active participants in the innovation process, with a greater contribution to regional development, it is necessary to go through two stages. The first one involves conducting research as part of the academic mission, and the second - includes taking part in regional economic development through both research and teaching. Once these changes have occurred the university has a new organisational structure with "mixed disciplinary departments, interdisciplinary centres, new disciplines, self-generation institution, and increased social space".⁴⁸⁴ Industry and government also need to be changed in ways that make it easier for the uni-

⁴⁸² Matkin 1997, 32.

⁴⁸³ L. Loydesdorff, and H. Etzkowitz, "The Triple Helix as a model for innovation studies," *Science and Public Policy* (1998).

⁴⁸⁴ Henry Etzkowitz, Gebhardt Webster, and B. Terra, "The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm," *Research Policy* 29 (2000), p. 329.

versities to become key players in the innovative process. Universities are becoming more entrepreneurial and engaged in business and industry. At this point most research universities have established some kind of technology transfer programmes providing for the interaction between universities and businesses.⁴⁸⁵

We think that the leading universities in Bulgaria are at the second stage described above – the organisational structures are built (university research centres in various areas, research institutes, institutes of postgraduate studies, specialised master's programmes, etc.) and they are suitable for the implementation of the technology transfer and for the development of interactions with businesses, industry and others stakeholders in LPS. Although Bulgarian universities have limited and reduced budgets for R&D, due to the economic crisis, they do carry out research financed by own funds and funds of the European Union.

A large proportion of the R&D base is not sufficient for the development of LPS. The alignment of the university assets, skills and expertise with regional industry clusters/ LPS needs will increase the regional benefit. Some regions may have a considerable number of research institutions, but companies in the region are not able to absorb the resulting technology. In these cases innovation is more likely to be outside the region. The main question is how the university effect/impact aligns with LPS within the region so that research can be used in the area and can contribute to the local economy.

The University is only one part in this process. Successful relationship/interaction between university and industry is dependent on the nature of the regional industrial cluster, LPS. Clusters vary based on their life cycle and industrial structure. In addition, their specific organisation model is different in the different regions. A cluster or an LPS in a wider context can be organised and operate very differently from one region to another. The reason for this may be the effect of the other factors and the interaction between stakeholders. *Traditions, experience, the culture of the population in the region, civil society, NGOs* can influence LPS creation and development. The majority of LPS have deep historical roots: they started either by some historical accident (as the development of local skills and knowledge), or by initial conditions related, for example to a pioneer entrepreneur, or to the availability of educational and research institutions. Culture, traditions and experiences of local people formed the regional identity of LPS. Local inter-relationships in production increase, cooperation with suppliers, knowledge spillovers among companies, and collective actions to organise business associations and labour unions have also an important role. Especially useful is when associations and NGOs are created locally, as they have common goals and priori-

⁴⁸⁵ Etzkowitz et al., 329.

ties for the development of the local economy and can build better relationships with all stakeholders in the LPS.

The social infrastructure in the country and in the regions strongly influence the development of local production systems. *Vocational schools* must provide executives and skilled workers in accordance with the needs of the businesses operating in a given area. Unfortunately, the reforms of secondary education, the extremely limited school budgets, poor material conditions and old equipment have a negative impact on the quality of the educational process. The unfavourable demographic trends (reduction of the population in small towns (and displacement mainly to Sofia); reduced number of students, leading to the closure of a number of professional schools in the country, aging teachers etc.) further worsen the current situation.

Cooperation between schools and businesses from the cluster/LPS creates opportunities for improvement in several directions: implementation of different internship programmes and scholarships, eventually hiring students with good results; donations from companies in the form of equipment, IT, establishment of public-private partnership etc.

The economic and financial crisis, together with the on-going incoherent, long and uncertain health care reform adversely affect the *public health services*. Negative results are related to: old facilities, lack of modern medical equipment, poor financial results of hospitals, leading to closure of small settlements, poor quality of health services. For 2009 Bulgaria was ranked the last of the Member States by the EU "Health Consumer Index".⁴⁸⁶

In conclusion we can say that the social conditions in which LPS in Bulgaria operates have no beneficial effect on their development. Various forms of cooperation, especially public-private partnership, together with various forms of CSR, donations, etc. can contribute to the improvement of the social infrastructure. But the main role of LPS, especially for the businesses, is related to: job creation, retention of specialists in the area, attracting people from other regions and the expansion of the economic activities.

3.6. Environmental conditions

Issues related to the environment are becoming a priority in both public and business space in Europe and worldwide. Environmental conditions in which LPS operate are formed by several elements.

⁴⁸⁶ Analysis of the socio-economic development in Bulgaria, 2011, p. 15 www.eufunds.bg/document.

1. The normal functioning of the LPS needs a well-established **environmental infrastructure** - water supply, sewerage system, water treatment plants, hazardous waste landfills, regional landfills etc. Investments in the environmental infrastructure are closely related to sustainable economic growth and contribute to the competitiveness of regions and LPS. The overall environmental infrastructure, in terms of water supply and sewerage system, is built in Bulgaria, but for the most part of the country it is heavily depreciated and the services' quality is not always at the necessary level. Given the fact that the limited resources of the municipalities to improve and build a new environmental infrastructure mainly rely on funding from the operational programmes financed by the European funds, a serious problem for almost all LPS is the construction of treatment plants and regional landfills. In this sense, we cannot believe that LPS operate in favourable conditions in terms of environmental infrastructure.

2. The environmental behaviour of LPS is governed by the established **legal framework** - environmental regulations and standards, laws and regulations directly related to the work of the various actors in the LPS.

The environmental legislative framework in Bulgaria is built on and is fully reflective of the EU directives in the field of the environment (Environmental Protection Act, Water Act, Waste Management act, Clean Ambient Air Act, Soils Act, Protected Areas Act and others), and many regulations concerning the corporate responsibility in terms of environmental protection.⁴⁸⁷

3. The government's **environmental policy** is the starting point for different environmental activities carried out by municipalities, NGOs, businesses and stakeholders of LPS. Bulgarian legislation and strategic documents are consistent with the European and international documents in the field of the environment. Bulgaria, like many EU countries, applies a combination of policy instruments in the development of several strategic documents that focus on the environment and climate change: National Environmental Strategy (2009-2018), 2020 Energy Strategy of the Republic of Bulgaria, National Action Plan on Climate Change (2013-2020), National Action Plan for Renewable Energy, National Long-Term Energy Efficiency Programme (2005-2015) etc. LPS can provide a significant contribution to the achievement of the objectives and priorities in the field of environment and climate change.

4. The availability of **financial instruments** that participants in LPS can use to improve the environmental impact of their activities is essential for the establishment of favourable environmental conditions. Like in many European countries, the financial support in the field of the environment in Bulgaria makes use of var-

⁴⁸⁷ See Ministry of Environment and Water of Bulgaria, www.moew.government.bg/.

ious schemes of grants funded by the European funds (Operational Programmes: “Competitiveness”, “Regional Development”, “Environment”, etc.) or funds specially designed for energy efficiency and renewable energy sources (Energy Efficiency Fund in Bulgaria, International Fund Kozloduy), as well as of a number of other programmes and funds (“LIFE +”, Bulgarian-Swiss Cooperation Programme, etc.).

Funding opportunities for environmental projects, particularly to tackle climate change, are “flexible mechanisms” of the Kyoto Protocol - “joint implementation” and international emissions trading (international trade with Assigned Amount Units (AAUs) through the National Green Investment Scheme). The operation of both Joint implementation and National Green Investments Scheme is determined by the Environmental Protection Act. The projects within the framework of the National Green Investments Scheme, which shall be submitted in the process of negotiations for the sale of assigned amount units (AAUs) (sings) are in the field of energy efficiency and renewable energy. The main priority areas, for which the proceeds from the AAU sales shall be used, are defined in Article 142e(2) of the Environmental Protection Act. (18.06.2010).

In the conditions of crisis, projects’ implementation by municipalities, businesses and non-governmental organisations forming LPS is connected with co-financing and implementation of a number of activities with their own funds (development of investment projects, the energy survey (audit) etc.). The economic and financial instruments, based on market forces and the use of financial incentives, used for the conduct of public policies in Bulgaria, are still limited.

4. Acquisition/implementation of the **certificates in the field of the environment**. From a legislative perspective (Environmental Protection Act) and to some extent from an increation perspective (promotion) in Bulgaria are created the necessary conditions for the award of certificates related to the voluntary mechanisms of the EU in the field of the environment – the Environmental Management and Audit Scheme (EMAS) and the EU Ecolabel.⁴⁸⁸

The European Environmental Management and Audit Scheme (EMAS) is a voluntary commitment by the businesses to improve their environmental performance. Unlike the industry standards, such as ISO 14001 EMAS is integrated into the legal system of the European Union and is administered directly by all member states of the European Union. The number of the acquired European certificates is extremely small (only three) in Bulgaria, because of the numerous problems faced by the organisations (one of the problems is the financial one).

⁴⁸⁸ Eco-Management and Audit Scheme (EMAS) Regulation (EC) No 1221/2009 (EMAS III) entered into force in January 2010.

Several companies in Bulgaria (according to the Club 9000 their number is 787) are certified to ISO 14001 (international industrial environmental standards). While EMAS focuses on the production processes, the EU Ecolabel focuses on products and services. It recognises the environmental excellence of products and services and thus contributes to their development. The label also serves as a communication tool for companies to influence consumers' sustainable consumption decisions.

In our country we have the legislative framework and the administrative capacity for green procurement. The law on public procurement contracts, fully harmonized with the relevant European directives, includes provisions for green procurement.

5. The improvement of the environmental conditions in which LPS operate depends on the activity of the companies, through the implementation of **preventive control on environment pollution** and the construction of corporate systems for monitoring and control.

6. The **partnership** is a significant tool for environmental protection and climate change prevention, since it combines experience and resources of different participants. Most often, it is implemented as a public private partnership. An important factor in improvement of the environmental conditions, in which LPS operate, is the partnership between the various actors/stakeholders in the implementation of a number of environmental projects and the cooperation in a number of initiatives, including in creation, promotion of various means of improving the environmental culture in the region and country etc.

3.7. The role of local self-governance in stimulating LPS development in Poland – political and legislative conditions for the functioning of LPS

3.7.1. General characteristics of local self-governance in Poland

Local self-governance in Poland is an integral part of the decentralised public administration, which includes central government and local self-governance levels. When in 1990 local self-governance was reactivated, the uniform legal and administrative structure of the state was preserved. This means that the administrative and territorial units (in this case, local self-governance) are not autonomous and remain within the structures of the decentralised public administration. Thus, local self-governance in Poland is not an independent emanation of the State sovereignty.

Within the structures of the democratic state, local self-governance in Poland is the principal framework of public life organisation. Hence, the population in a given territory make a local self-governance community, pursuant to law, which

carry out specific public tasks on its own behalf and responsibility⁴⁸⁹. From this point of view, it is important for the local self-governance to be independent in terms of decision-making. This means that public tasks are delivered under decentralised arrangements.

Local self-governance units have extensive rights in: enacting local regulations, shaping the internal system, dealing with financial and tax issues, delineating directions of local development plans or the scope of investment projects⁴⁹⁰. The lack of subordination to central government administration when it comes to decisions concerning the future of a given territorial unit does not, however, preclude the surveillance over the activities undertaken by the self-governance (mainly from the point of view of their compliance with binding legal provisions). Statutory surveillance bodies are the Prime Minister, the Voivode and the Regional Clearing Chamber in financial matters. Their surveillance is limited only by the compliance criterion (legal compliance)⁴⁹¹ and it may not infringe the independence of local self-governance guaranteed in the Constitution⁴⁹². The principle of local self-governance independence is conditioned by its legal personality (it refers to the local self-governance as such not to its individual bodies), i.e., the capability of having legal rights and duties, e.g., take loans, issue bonds, sell assets etc.

The model of local self-governance adopted in Poland is based on two levels: local and regional, with one reservation, that pertains to local interests and should be dealt with at the level of a commune or a county (local level), while regional social and economic development issues are among the tasks of the self-governance of the voivodeship/region (regional level)⁴⁹³.

A commune plays a specific role in the structure of local self-governance as it has the status of a primary unit⁴⁹⁴. It is defined in terms of its subject, object and the way of executing public responsibilities. The subject of the commune is its local

⁴⁸⁹ Constitution of the Republic of Poland of 2 April 1997 (Dz. U. (Official Journal) of 1997, No. 78, item 483 with further amendments).

⁴⁹⁰ Wojciechowski E., *Gospodarka samorządu terytorialnego*, Wydawnictwo Difin, Warsaw 2012, p. 16.

⁴⁹¹ Surveillance tasks are also executed by administrative courts, Minister responsible for public administration and Polish Parliament (Sejm).

⁴⁹² Article 16(2) and 165 of the Constitution of the Republic of Poland of 2 April 1997 (Dz. U. of 1997, No 78, item 483 with further amendments).

⁴⁹³ Organisation and operations of local self-governance units are specified in: 1. Act of 8 March 1990 on Commune self-governance (Dz. U. of 2001, No. 142, item 1591 with further amendments.), 2. Act of 5 June 1998 on County self-governance (Dz. U. of 2001, No. 142, item 1592 with further amendments.), 3. Act of 5 June 1998 on Voivodeship self-governance (Dz. U. of 2001, No. 142, item 1590 with further amendments).

⁴⁹⁴ Art 164(1) of the Constitution of the Republic of Poland of 2 April 1997 (Dz. U. of 1997, no. 78, item 483 with further amendments)

community living in a given area and organised in a self-governance union. Its objective is the execution of public responsibilities. The competences of the commune are exclusive and must be exercised. Thus, a commune may not wave them or, with the exception of clearly specified cases, transfer them to any other entity. A county is a supplementary unit, complementary *vis-à-vis* a commune. Its economic, financial and social potential is bigger than that of the commune, which enables to deliver tasks at supra-commune level.

Regional self-governance (voivodeship) is the level, where social and economic actions are coordinated and mobilised. Public services (granted to communes and counties) are of marginal importance here, although, to a minimum extent, they are also delivered. A voivodeship is mainly perceived as a unit responsible for the shaping of national, civic and cultural awareness of its inhabitants and caring for local identity, supporting culture and national heritage together with the social and economic development of the region. The importance of local self-governance at regional level considerably increased after Poland's accession to the European Union in 2004, when it became a subject of regional policy responsible for the allocation of substantial financial resources from the Structural Funds granted for levelling the development discrepancies among the regions and enhancing their competitiveness.

Regional self-governance differs from the other units because at this level local self-governance administration and government (central) administration co-exist, thus creating a dualism of powers. Local self-governance powers are executed by the regional self-governance, which holds real executive powers in a voivodeship (region). The voivode (governor) is a body of the central government administration, which supervises the united central government administration⁴⁹⁵. In the voivodeships there are also bodies of central administration directly subordinated to the ministers and heads of central offices.

These units of local self-governance are independent of one another; there is no hierarchy among them. Their relations are horizontal, i.e. the commune independently delivers its responsibilities in its territory; the county delivers tasks exceeding the territorial competence of the commune and the voivodeship delivers tasks exceeding the territorial competence of a county⁴⁹⁶. They execute public responsibilities, which have not been assigned to the public authorities by laws, or by the Constitution. Local self-governance units are also independent when it comes to decision-making and actions. Regional self-governance has not any su-

⁴⁹⁵ Act of 23 January 2009 on Voivodes and Central Government Administration in Voivodeships (Dz. U. of 2009, No. 31, item 206).

⁴⁹⁶ Klyszz R., *Ustawy o samorządzie powiatowym i województw. Komentarz*, Oficyna Wydawnicza Unimex, Wrocław 1999, pp. 132-133.

pervisory powers over the lower levels, the county bodies do not supervise the communes. They are expected to collabourate for the benefit of their inhabitants, to enter all sorts of agreements or unions aimed at a joint and more effective delivery of tasks.

Polish local self-governance has developed into a combination of an extensive system of powers and public administration. In accordance with the principle of the division of powers, local self-governance bodies are dual in nature. The system includes legislative and supervisory bodies executing collective powers at all levels of local self-governance (commune council, county council, regional parliament (sejmik)) and executive bodies, also acting as colleges in counties and in regions (voivodeships) (county board, regional board). In the communes powers are executed individually by the *wojt* and the mayors of towns and cities. Councilors of commune and county councils and regional parliament, as well as *wojts*, town and city mayors are elected in equal, universal, direct and secret vote. Executive bodies in counties and regions are indirectly elected, i.e., they are elected by competent legislative and supervisory bodies at the respective levels (county council and regional parliament).

Local self-governance is funded mainly from its own resources, including local and regional taxes, shared income from taxes paid to the central budget (PIT, CIT), charges, income from property and other types of income. Own budgetary resources are used for the execution of the responsibilities conferred upon these bodies and provide the basis for applying for external funding. Local self-governance units also receive transfer income: general subsidiaries and target grants. The financial resources from abroad that do not have to be paid back and the resources from the European Union are also part of their income.

By January 1st, 2013 there were 2,479 communes, 380 counties and 16 voivodeships in the local self-governance structure in Poland⁴⁹⁷. Among the communes there are: urban communes (12.3% of all communes in Poland), urban-rural communes with town(s) surrounded by villages (24.3%) and rural communes with no towns on their territory (63.4%). County local self-governance units have the status of rural districts or of urban districts (the so called municipalities with county status), including municipalities which execute responsibilities of a county

⁴⁹⁷ Besides internal administrative division, Poland also uses the NUTS (Nomenclature of Territorial Units for Statistics) classification for the purpose of statistics. NUTS 1 level in Poland includes 6 macroregions (delineated for the purpose of statistics), which combine several voivodeships: Central, Southern, Eastern, North-Western, South-Western, and Northern macroregions. NUTS 2 are 16 voivodeships. NUTS 3 level consists of 66 statistical sub-regions, each of them includes several counties. The EU statistics also distinguish local administrative units LAU 1 and LAU 2, the equivalent of Polish counties and communes.

and of a commune. The latter are mostly capitals of former voivodeships, which, as a result of the public administration reform, ceased to perform their functions as of January 1st 1999, or which have a population exceeding 100 K inhabitants.

Table 3.1. Characteristics of local self-governance at various levels in Poland

Characteristics	Commune self-governance	County self-governance	Regional self-governance
What is self-governance	Pursuant to law, inhabitants establish a local self-governing community in a given area		Pursuant to law, inhabitants establish a regional self-governing community in a given area
legal personality	Yes		
legal protection of independence	Yes		
local self-governance assets	Yes		
Scope of activities in public domain	Presumption of competence in local matters	Listed competences	Presumption of competence in regional matters
Legislative and supervisory body	Commune Council	County Council	Regional Parliament
Legislative and supervisory body elections	Direct by local inhabitants		
Executive body	Vogt, town and city mayor	County Board headed by a starost	College Board headed by a Marshal
Executive body elections	Direct by local inhabitants	Indirect by legislative body	Indirect by legislative body
Term of office	4 years		
Right of accession to unions, associations and self-governance agreements	Yes		

Source: own study based on A. Miszczuk, M. Miszczuk, K. Żuk, *Gospodarka samorządu terytorialnego*, Publishing House PWN, Warsaw 2007, p. 31.

There are 66 units with that status, or 17.4% of all counties. The legal status of Warsaw, the capital city of Poland, (a municipality with a county status being additional the country's capital one), was regulated in a separate legal act - the Act of March 15, 2002 on the structure of the Capital City of Warsaw.⁴⁹⁸

⁴⁹⁸ (DZ. U. of 2002, No. 41, item 361).

Table 3.2. Territorial units in Poland (01.01.2013)

Territorial units						
Voivodeship	communes				counties	
	total	urban	rural	urban-rural	land districts	urban districts
dolnośląskie	169	36	78	55	26	4
kujawsko-pomorskie	144	17	92	35	19	4
lubelskie	213	20	171	22	20	4
lubuskie	83	9	41	33	12	2
łódzkie	177	18	133	26	21	3
małopolskie	182	14	121	47	19	3
mazowieckie	314	35	229	50	37	5
opolskie	71	3	36	32	11	1
podkarpackie	160	16	110	34	21	4
podlaskie	118	13	78	27	14	3
pomorskie	123	25	81	17	16	4
śląskie	167	49	96	22	17	19
świętokrzyskie	102	5	71	26	13	1
warmińsko-mazurskie	116	16	67	33	19	2
wielkopolskie	226	19	117	90	31	4
zachodniopomorskie	114	11	50	53	18	3
Total	2479	306	1571	602	314	66

Source: Central Statistical Office, http://www.stat.gov.pl/bip/36_PLK_HTML.htm (25.08.2013)

The territorial units are very diverse when it comes to their population and area. The average areas of the Polish territorial units are as follows: commune - 126 km², county – 973 km², municipality with a county status – 109 km², voivodeship – 19.5 K km². The average population in these units is 15.5K for a commune, 82.3K for a county, 192.3K for a municipality with a county status, and 2.4 m for a voivodeship.

Figure 3.1. Map of Poland – voivodeships



Source: <http://lodztestowa.cba.pl/>

3.7.2. Responsibilities and competences of local governance units in Poland

Local self-governance units are established first of all to deliver public tasks aimed at meeting the needs of local and regional communities by offering universally available public services. The catalogue of responsibilities allocated to local self-governances is wide. It includes, among others, matters connected with the living conditions of local population, social needs, ensuring spatial, environmental and public order, as well as public safety.

For the commune, the list of the responsibilities is not exhaustive. The responsibilities of the counties are specified by law. The counties deal with supra-commune responsibilities, which are not regional responsibilities. Both levels execute local tasks including technical and social services. The counties are also responsible for creating conditions for the execution of tasks of heads of county together with services and inspections laid down by law.

The voivodeships, similarly to the communes or counties, deliver certain services of technical and social nature, such as: collective transport and public roads, telecommunications, education, including higher education, promotion of healthcare, social welfare, family policy, sports and tourism. In addition, the responsibilities

of the regional self-governance include⁴⁹⁹: culture and protection of monuments, modernisation of rural areas, local development planning, environmental protection and water management, protection of consumers' rights, defence, public order, counteracting unemployment and mobilising local labour market, protection of employees' claims in case of employers' insolvency. However, the primary responsibility of the regional self-governance is to provide conditions for economic, social and culture development of the regions.

Table. 3.3. Own tasks of communes and counties

Category	Commune responsibilities	County responsibilities
Living standard	<ul style="list-style-type: none"> – maintenance of commune roads, streets, bridges, squares and traffic organisation, – maintenance of water supply infrastructure, waste water treatment, disposal and treatment of municipal waste water, housekeeping and care for order and sanitary facilities, landfills and disposal of municipal waste, – supply of electricity, heat energy and gas – telecommunications – local collective transport – building residential areas, 	<ul style="list-style-type: none"> – collective transport and public roads – telecommunications
Social needs	<ul style="list-style-type: none"> – healthcare – social welfare, including social welfare facilities – public education – culture, including commune libraries and other institutions of culture – sports and tourism, including the maintenance of leisure and sports infrastructure – family policy, including ensuring social, medical and legal assistance to pregnant women – property management 	<ul style="list-style-type: none"> – public education – promotion of health care – social welfare – family policy – support to disabled – culture – sports and tourism – property management – counteracting unemployment and mobilising local labour market

⁴⁹⁹ Article 14 Act of 5 June 1998 on regional self-governance (Dz. U. of 2001, No. 142, item 1590 with further amendments).

Spatial and environmental order	<ul style="list-style-type: none"> – spatial order, environmental protection and water management – commune green areas and forests 	<ul style="list-style-type: none"> – water management – environmental protection – geodesy, cartography and cadastre-related matters, – architecture and construction administration
Public order and safety	<ul style="list-style-type: none"> – public order and citizens safety – fire protection, flood protection including the supplies to the commune flood warehouse 	<ul style="list-style-type: none"> – public order and citizens' safety – protection against flood, including supplies to the county flood warehouse – preventing other extraordinary threats to the lives and health of humans and the environment – defence
Other	<ul style="list-style-type: none"> – protection of monuments – maintenance of fair facilities – maintenance of commune cemeteries – maintenance of commune public utility facilities and administrative buildings – support and dissemination of the idea of self-governance, creating conditions for the operations of auxiliary units and implementation of active citizenship programmes – promotion of a commune – cooperation with NGOs – cooperation with local and regional communities in other countries 	<ul style="list-style-type: none"> – protection of monuments – agriculture, forestry, inland water fishing – protection of consumer rights – maintenance of commune public utility facilities and administrative buildings – promotion of a county – cooperation with NGOs

Source: own studies based on Article 7 of the Act on Commune self-governance (Dz. U. of 2001, No. 142, item 1591 with further amendments), Article 4 of the Act on County Self-governance (Dz. U. of 2001, No. 142, item 1592 with further amendments).

There is a separate category of public tasks executed by local self-governance units, which includes those delegated by the central administration. These are public tasks delegated, pursuant to law, as a result of the legitimate needs of the State. The State must provide financial resources for these tasks and local self-governance may not refuse to execute them. There are also entrusted responsibilities, approved for execution by the local self-governance units and based on a contract or an agreement. These tasks may be allocated by the central administration or by other local self-governance units. The communes may execute tasks assigned to a county or a voivodeship, based on agreements, but they may not delegate their responsibilities to units of higher level.

3.7.3. Impact of local governance on entrepreneurship and local production systems

While analysing the possibilities of local and regional authorities to create conditions for development, we must pay attention to the decision-making competences conferred upon them in binding legislation. The support granted by local self-governances to the enterprises must remain within their responsibilities, according to the competences assigned to them by the law.

Article 65(2) of the Constitution of the Republic of Poland refers in general to the duty of the public authorities to conduct policies aimed at full and productive employment by delivering programmes that counteract unemployment, including organisation and support to vocational counselling and education⁵⁰⁰. Indirectly that article refers to the local self-governance competences in this area. According to the Act on the Principles of Conducting Development Policy local self-governance units are directly charged with the responsibility to enhance the competitiveness of their respective economies and maintain social and economic cohesion⁵⁰¹. The special role of local self-governance authorities is connected with supporting entrepreneurship. They were obliged to undertake actions aimed at creating favourable conditions for start-ups, especially for micro-enterprises and SMEs⁵⁰².

Many legal provisions related to local self-governance (commune self-governance, county self-governance and regional (voivodeship) self-governance) oblige local and regional self-governance units to: 1) optimally meet the needs of local community and, 2) create appropriate conditions for entrepreneurs to develop their businesses.

Thus, local authorities are responsible for: matters pertaining to the modernisation of the technical and social infrastructure; cooperation with NGOs and business support institutions. Within their competences they may also⁵⁰³:

- encourage growth through planning, developing and delivering various public policies (e.g., tax policy, rent policy);
- acquire and combine public and private financial resources to implement socially effective projects;

⁵⁰⁰ Constitution of the Republic of Poland of 2 April 1997 (Dz. U. of 1997, no. 78, item 483 with further amendments).

⁵⁰¹ (Dz. U. 2006, No. 227, item 1658 with further amendments, Art. 2).

⁵⁰² 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).

⁵⁰³ See 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 company i regionu*, Wydawnictwo Difin, Warsaw 2012, p. 88.

- coordinate the operations of the entities operating in a given area to ensure economic and social benefits;
- initiate economic and social projects;
- initiate and develop cooperation within partnership networks (between units representing public and private sectors and NGOs);
- support the collaboration between the universities and the industry;
- improve its inhabitants' education;
- mobilise active citizenship attitude;
- shape and maintain public order;
- conduct promotion and increation activities aimed at creating positive image of a given area (commune, region).

County and regional competences are also important for preventing unemployment and mobilizing local labour market. Local self-governances at these levels 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), employment-related projects financed by domestic (Labour Fund) or EU (European Social Fund) resources, developing and coordinating labour market policy and human development; tasks connected with the free movement of workers between member states⁵⁰⁴.

Table 3.4. Responsibilities and competences of local self-governance units related to entrepreneurship and local production systems

Commune	County	Voivodeship
<ul style="list-style-type: none"> – creating favourable conditions for supporting and mobilising entrepreneurship – collaboration with organisations of employers, employees, entrepreneurs, professional and economic associations – collaboration with entities of public and private sectors, and NGOs – collaboration within public-private partnerships – shaping the system of local and regional public transport and managing public roads – managing public education – orderly spatial development – creating positive image and developing increation policy – developing human and social potential – raising external funding – maintenance and development of technical and social infrastructure 		
<ul style="list-style-type: none"> – property management – installing, modernising, and developing water 	<ul style="list-style-type: none"> – property management – developing social infrastructure 	<ul style="list-style-type: none"> – creating conditions for economic development and mobilising economic

⁵⁰⁴ Act of 20 April 2004 on promotion of employment and labour market institutions (Dz. U. of 2004, No. 99, item 1001 with further amendments).

<ul style="list-style-type: none"> supply and water treatment infrastructure, electric energy and heat supply infrastructure – waste management 	<ul style="list-style-type: none"> – geodesy, cartography, cadastre, – architecture and construction related administration – mobilising local labour market 	<ul style="list-style-type: none"> activities – increasing competitiveness and innovation of regional economy – supporting technological progress – mobilising regional labour market – protecting employers' claims
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Source: own study

Local and regional self-governances need to develop the culture of entrepreneurship and innovation. Within that context, local authorities and inhabitants' will to collabourate surely help to deliver the task. Local and regional leaders, and different organisations, which support entrepreneurship, play an equally important role. All initiatives carried out may contribute to the enhancement of entrepreneurship within the local production systems.

3.8. Regional differentiation of labour markets as a social condition for LPS functioning

The expert opinion drafted to update the National Development Strategy (2007-2015) reads: "(...) in the long-term the key challenge is how to enhance the economically active population to attain the objective of the *Europe 2020* Strategy, according to which the employment rate in the age group 20 – 64 should be 75%. After 2020 the goal will be to maintain such a high employment rate. At the same time, we should anticipate adjustment processes determined by the development of environmentally friendly technologies and increation and communication technologies (ICT)..... We also need to assume that changes in the structure of labour demand will continue, with increasing demand for highly skilled workers. In line with global trends in highly developed economies, technological change in Poland favours capital and highly qualified labour while low skilled labour is economised by technological progress."⁵⁰⁵ These key challenges combined with the aging of the society delineate the development perspectives of the Polish economy and will also impact the functioning and the potential of local production systems (LPS) in Poland.

In Poland the problem of the aging population, which limits the effective supply of labour in the future, has become a fact. Although in the period 2008 - 2011 the

⁵⁰⁵ Kryńska E., Arendt Ł., Rynek pracy – wyzwania strategiczne, Ministry for Regional Development, Warsaw 2011, http://www.mrr.gov.pl/ministerstwo/praca/nabor_do_SC/Documents/IPiSS_ekspertyza_rynek_pracy_uzupelniona_24012011.pdf access on 08.08.2013.

total population increased, the forecast of the Central Statistical Office (Polish: Główny Urząd Statystyczny – GUS) estimates that by 2035 the total population of the country will drop down (compared to 2007) by 2.223 million (5.6%), to 35.993 m people and 90% of the drop will take place in urban areas. Polish society is aging more and more rapidly: while at the end of 2007 the average age was 37.3 years, it is estimated that by 2035 it will increase to 47.9 years. For the labour market, changes in the structure of population by economic age groups are of particular importance. For years the proportion of the pre-working age population (usually taken to be 0-17 age group) diminishes, while the share of the working-age population (18-59/64 years) increases less and less vigorously, and the percentage of the post-working age group (60+/65+) constantly increases. Forecasts by GUS leave no room for doubt that the shrinkage of the working-age population by 2035 will be substantial (estimated at 3.8 m people)⁵⁰⁶.

One of the major and continuous problems of the Polish labour market remains the low economic activity of Poles. Although the economic activity rate for people aged 15-64 in Poland in the period 2004 - 2012 increased slightly (more than for the EU28), for Poland it is still by 5.2 pp lower than for the EU28⁵⁰⁷.

Considerable differences in the labour market situation (and in its changes) are also noticeable at regional level. The only region (voivodeship) where the activity rate is close to that of the EU member states is mazowieckie, with the activity rate of 71.7% (identical with the EU28)⁵⁰⁸ reported for 2012. Relatively high values of the rate (above the average for Poland) have been recorded in lodzkie (68.7%), swietokrzyskie (68.2%), podlaskie (67.9%), lubelskie (67.4%), and wielkopolskie (66.8%)⁵⁰⁹ regions. The worst situation was reported for the warminsko-mazurskie (60.2%), zachodniopomorskie (62.8%), and lubuskie (62.9%) regions. In addition, in 2004-2012, the pomorskie, kujawsko-pomorskie, and malopolskie regions recorded a drop in the activity rate (by, 0.1, 1.6, 0.6, and 0.4 pp, respectively) (see Table 3.5.).

⁵⁰⁶ Prognoza ludności na lata 2008-2035, Central Statistical Office, Warsaw 2009. Similar conclusions were reached in forecasts developed using the SYSDM 2.0 model, presented in detail in "Employment in Poland 2008. Work over the life course", Human Resources Development Centre, Warsaw 2010.

⁵⁰⁷ Analyses presenting social conditions for LPS operations were conducted using data for the period 2004-2012. At that time Poland was already an UE member state.

⁵⁰⁸ Besides, it is worth noting that mazowieckie region ranked 2 with respect to the increase in economic activity rate (5.5 pp), following the swietokrzyskie (5.8 pp).

⁵⁰⁹ Where no year is indicated, data come from 2012.

Table 3.5. Economic activity rates 2004-2012 (in %)

Region/Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2012-2004*
European Union (28)	69.2	69.7	70.1	70.3	70.7	70.9	70.9	71.1	71.7	2.5
Poland	63.7	64.4	63.4	63.2	63.8	64.7	65.6	66.1	66.5	2.8
dolnoslaskie	63.0	64.0	63.5	63.0	62.6	64.5	65.2	64.7	64.9	1.9
kujawsko-pomorskie	66.7	64.4	61.2	60.7	61.2	63.4	63.7	64.2	66.1	-0.6
lodzkie	65.3	65.6	65.0	65.1	65.7	65.6	67.6	68.6	68.7	3.4
lubelskie	64.2	65.7	65.5	66.3	65.0	65.0	65.9	67.0	67.4	3.3
lubuskie	62.8	63.4	61.3	61.7	60.8	62.1	64.0	63.9	62.9	0.1
malopolskie	66.5	65.3	64.1	63.6	65.0	65.4	65.7	66.1	66.1	-0.4
mazowieckie	66.1	67.8	67.2	67.1	68.7	68.9	69.6	71.1	71.7	5.5
opolskie	61.4	63.4	62.9	61.9	61.3	64.4	64.8	65.2	66.0	4.6
podkarpackie	60.5	63.2	62.5	62.7	63.1	64.8	65.5	65.5	65.9	5.5
podlaskie	67.1	66.7	64.5	65.2	66.1	66.5	66.0	67.0	67.9	0.8
pomorskie	61.5	62.9	61.8	62.3	62.1	62.1	65.2	64.6	65.6	4.1
slaskie	59.5	61.2	59.6	58.9	60.3	61.7	63.0	63.9	63.7	4.2
swietokrzyskie	62.4	64.2	65.1	66.5	66.8	66.7	67.2	67.5	68.2	5.8
warminsko-mazurskie	60.4	61.2	60.3	60.8	60.3	61.4	62.0	60.8	60.2	-0.1
wielkopolskie	65.5	65.3	63.3	62.8	64.1	65.1	66.7	66.5	66.8	1.3
zachodniopomorskie	64.4	62.6	59.8	58.7	59.9	61.3	61.3	61.6	62.8	-1.6

Source: Eurostat database

* in percentage points

The relatively low economic activity of the Poles translates into poor employment rates (lower than for the EU28) – by 4.3 pp below the EU average. Similarly to the economic activity rate, the employment rate is the highest in mazowieckie (65.8% in 2012; mazowieckie is the only region in Poland, where the rate has been above the EU28 average since 2009). Among the regions with the highest employment rate are: podlaskie (61.6%), wielkopolskie (61%), lodzkie (61%), and lubelskie (60.2%) regions. The group of regions with the lowest employment rate includes: warminsko-mazurskie (53.6%), and zachodniopomorskie (55.9%). A slightly better situation was recorded in podkarpackie (57.0%) and lubuskie (57.2%) regions (see Table 3.6.).

Table 3.6. Employment rates 2004-2012 (in %)

Region/Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2012-2004*
European Union (28)	62.6	63.4	64.3	65.3	65.8	64.5	64.0	64.1	64.0	1.4
Poland	51.4	52.8	54.3	57.0	59.2	59.3	59.3	59.7	59.7	8.3
dolnoslaskie	46.1	49.3	52.5	55.0	56.8	57.9	57.8	57.8	57.6	11.5
kujawsko-pomorskie	51.9	51.5	51.2	53.8	55.6	56.8	56.9	57.0	58.2	6.3
lodzkie	52.9	54.1	56.2	59.0	61.3	60.6	61.3	62.2	61.0	8.1
lubelskie	53.5	56.0	56.9	59.8	59.0	58.6	59.2	59.9	60.2	6.7
lubuskie	46.9	51.1	52.7	55.6	56.8	56.1	57.2	57.8	57.2	10.3
malopolskie	55.0	55.0	55.8	58.1	61.0	60.1	59.6	59.8	59.1	4.1
mazowieckie	55.4	57.6	58.8	60.9	64.6	64.8	64.4	65.4	65.8	10.4
opolskie	49.4	52.5	54.3	56.0	57.3	57.9	58.5	59.1	59.7	10.3
podkarpackie	51.0	52.3	53.7	56.5	57.8	58.0	57.6	57.0	57.0	6.0
podlaskie	57.0	56.9	57.0	59.2	61.7	61.7	59.2	60.7	61.6	4.6
pomorskie	49.2	51.0	53.2	56.3	58.7	58.1	59.1	59.1	59.3	10.1
slaskie	48.4	49.5	51.1	54.1	56.3	57.5	57.2	58.0	57.6	9.2
swietokrzyskie	49.3	51.6	54.7	58.3	60.8	59.3	59.0	58.6	59.1	9.8
warminsko-mazurskie	45.9	48.7	50.7	54.4	55.8	56.1	56.0	54.9	53.6	7.7
wielkopolskie	54.1	54.0	55.2	57.6	60.2	60.2	60.8	60.7	61.0	6.9
zachodniopomorskie	48.9	48.3	49.4	51.9	54.2	54.9	53.7	54.3	55.9	7.0

Source: Eurostat database

* in percentage points

The employment rates of the mazowieckie and warminsko-mazurskie regions differed by 12.2 pp in 2012. The dispersion of the regional employment rates (indicator considered when defining the employment policy in the EU)⁵¹⁰ at NUTS2 level in Poland was 5.1 in 2012, and at NUTS 3 it was 7.7 in 2011. It means that 1) the differences in the employment rates among the regions are significant in Poland; 2) their increase is more pronounced in the bottom of the NUTS classification. That is very important for the LPS – depending on the location, they face different situations on the labour market and they can rely on a labour supply of varying quality.

The employment structure differs depending on the economic sector (traditional division into 3 sectors: agriculture, manufacturing, and services). In general, we should conclude that in Poland, despite the improvements in the period 2004 - 2012,

⁵¹⁰ The dispersion of regional (NUTS level 2) employment rates of the age group 15-64 shows the regional differences in employment within countries and groups of countries. The dispersion of regional employment rates is zero when the employment rates in all regions are identical, and it will rise if there is an increase in the differences between employment rates among regions. The indicator is not applicable for DK, IE, LU, CY, EE, LT, LV, MT, SI or IS as these countries comprise only one or (in the case of IE) two NUTS level 2 regions.

employment is still far from the ideal model of the highly developed countries, as it is too high in agriculture, while in services it is too low. It is not easy to determine which Polish region represents an employment structure that is close to the model. In the mazowieckie region the share of people employed in services is the highest in Poland (66.7%), but at the same time 11% are employed in agriculture. The Slaskie region, with the lowest share of people employed in agriculture (2.6%) has got the highest share of people employed in manufacturing (39%), which gives a percentage of employment in services of 58.4% (due to the characteristics of the region, with very high concentration of coal mining and steelworks). The most archaic structure of the working population was observed in the regions: lubelskie, podlaskie and swietokrzyskie (see Table 3.7.).

Table 3.7. Employment structure by sectors in 2004 and 2012 (in %)

Sector	Agriculture		Manufacturing		Services	
	2004	2012	2004	2012	2004	2012
Poland	18.0	1.6	28.8	30.4	53.2	57.0
dolnoslaskie	9.4	6.6	32.0	34.8	58.6	58.6
kujawsko-pomorskie	15.7	16.6	32.5	30.3	51.8	53.1
łódzkie	18.7	13.0	31.4	32.1	49.9	54.9
lubelskie	36.5	27.7	20.1	21.5	43.4	50.8
lubuskie	10.9	7.6	31.0	33.3	58.1	59.1
malopolskie	23.0	13.1	27.7	31.1	49.3	55.8
mazowieckie	17.3	11.0	20.0	22.3	62.7	66.7
opolskie	19.5	11.7	30.7	37.2	49.8	51.1
podkarpackie	28.8	19.7	26.8	30.4	44.4	49.9
podlaskie	36.1	25.1	20.9	23.1	43.0	51.8
pomorskie	11.0	8.2	29.7	29.4	59.3	62.4
slaskie	4.5	2.6	38.8	39.0	56.7	58.4
swietokrzyskie	31.7	24.0	23.7	28.5	44.6	47.5
warmińsko-mazurskie	16.7	11.9	29.5	32.2	53.8	55.9
wielkopolskie	17.7	13.7	34.2	34.4	48.1	51.9
zachodniopomorskie	10.4	8.2	28.5	30.2	61.1	61.6

Source: Local Data Bank database, Central Statistical Office, Warsaw

Slow changes in the economic structure of Poland went hand in hand with significant improvements of the human resources potential, measured with the education level of the population. Unfortunately, due to the limited absorption capacity of the Polish economy, the improvements led to employment below one's formal qualifications, (especially in the group of young people), to an increased share of people with university education in the unemployed population, and to work-related emigration.

In Poland the distribution of the population aged 15-64 by level of education is differentiated. The best (formal) potential of skills on the labour market is available in the mazowieckie region, where in 2012 people with higher education represented almost 30% of the population in this age group. On the other end of the scale there are regions like warminsko-mazurskie and lubuskie, where the percentage does not exceed 17%. What is important, is that the changes in the education structure in the group aged 15-64 led mostly to an increase of the share of people with higher education with remuneration comparable to the remuneration of people with junior high school, primary or lower education (see Table 3.8.).

Table 3.8. Percentage of people aged 15-64 by levels of education in the total population in this group (in %)

Education	Higher		College and secondary vocational		Secondary general		Basic vocational		Junior high school, primary and lower	
	2004	2012	2004	2012	2004	2012	2004	2012	2004	2012
Poland	12.7	21.5	24.8	24.2	9.6	10.9	25.0	26.7	27.9	16.7
dolnoslaskie	12.8	20.8	24.6	24.1	10.0	11.1	29.7	27.4	22.9	16.6
kujawsko-pomorskie	13.1	17.7	26.8		10.0	10.9	28.1	30.1	22.0	19.0
łódzkie	10.4	20.7	22.0	24.6	8.6	12.4	34.1	24.6	24.9	17.7
lubelskie	12.5	21.0	25.2	25.5	10.6	10.6	27.4	24.6	24.3	18.3
lubuskie	13.2	16.6	24.9	25.3	10.3	10.9	26.7	28.9	24.9	18.3
malopolskie	11.8	22.5	25.1	24.0	8.9	11.1	31.5	27.3	22.7	15.1
mazowieckie	13.0	29.2	24.7	23.1	10.1	12.1	31.0	21.0	21.2	14.6
opolskie	17.4	17.7	25.3	24.4	12.4	9.7	24.2	31.6	20.7	16.6
podkarpackie	10.8	18.8	24.0	24.7	7.9	9.7	34.2	28.1	23.1	18.7
podlaskie	10.6	21.6	25.2	25.1	8.6	10.8	30.2	22.8	25.4	19.7
pomorskie	13.0	22.5	24.0	21.5	10.9	12.2	29.8	25.9	22.3	17.9
slaskie	12.2	20.7	24.8	26.5	9.8	9.9	33.4	29.7	19.8	13.2
swietokrzyskie	13.2	20.7	26.3	24.7	8.1	9.3	28.7	27.3	23.7	18.0
warminsko-mazurskie	11.0	16.3	23.1	23.1	8.8	11.3	27.8	25.4	29.3	23.9
wielkopolskie	11.3	19.8	23.0	24.4	9.7	10.2	34.5	30.1	21.5	15.5
zachodnio-pomorskie	12.9	19.8	22.8	22.6	10.5	11.4	28.1	26.9	25.7	19.3

Source: Local Data Bank database, Central Statistical Office, Warsaw

The mismatch between the qualifications and the vocational background of the labour force and the employers' needs resulted in an unemployment rate of ca. 7%

(in the structural unemployment) even in the times of substantially improved economic situation. Currently, when the effects of the global crisis are still felt, the unemployment rate started to increase slowly in 2009 and reached 10.1% in 2012. We should stress, however, that compared to the beginning of the 21st century, the situation on the labour market considerably improved; since 2009 Poland has recorded an unemployment rate below the EU28 average. At the same time, the unemployment levels differ across regions: the lowest unemployment rates in 2012 were reported in the mazowieckie (8%), wielkopolskie (8.5%), and lubuskie (9%) regions, while the highest is in podkarpackie (13.2%), swietokrzyskie (13.1%), and kujawsko-pomorskie (11.9%) (see Table 3.9.).

Table 3.9. LFS unemployment rates in 2004-2012 (in %)

Region/Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2012-2004*
European Union (28)	9.3	9.0	8.2	7.2	7.0	9.0	9.6	9.7	10.5	1.2
Poland	19.1	17.7	13.9	9.6	7.1	8.2	9.6	9.6	10.1	-9.0
dolnoslaskie	26.7	22.8	17.3	12.7	9.1	10.1	11.3	10.6	11.1	-15.6
kujawsko-pomorskie	22.0	19.8	16.2	11.3	9.1	10.4	10.6	11.1	11.9	-10.1
lódzkie	18.8	17.4	13.4	9.3	6.7	7.6	9.3	9.3	11.1	-7.7
lubelskie	16.1	14.3	12.8	9.5	8.8	9.7	9.9	10.3	10.5	-5.6
lubuskie	24.9	19.1	14.0	9.8	6.5	9.6	10.5	9.4	9.0	-15.9
malopolskie	16.8	15.3	12.6	8.5	6.2	7.9	9.1	9.4	10.4	-6.4
mazowieckie	16.0	14.8	12.3	9.1	6.0	6.0	7.4	7.9	8.0	-8.0
opolskie	19.3	16.9	13.5	9.4	6.5	9.9	9.6	9.4	9.5	-9.8
podkarpackie	15.1	16.7	13.7	9.6	8.2	10.1	11.7	12.6	13.2	-1.9
podlaskie	14.8	14.4	11.3	8.9	6.4	7.1	10.2	9.3	9.2	-5.6
pomorskie	19.8	18.9	13.8	9.5	5.5	6.4	9.3	8.5	9.5	-10.3
slaskie	18.5	19.0	14.2	8.1	6.6	6.7	9.1	9.2	9.4	-9.1
swietokrzyskie	20.4	19.0	15.5	12.1	8.8	10.8	12.0	13.0	13.1	-7.3
warminsko-mazurskie	23.8	20.4	16.0	10.5	7.4	8.5	9.6	9.6	11.0	-12.8
wielkopolskie	17.2	17.2	12.7	8.3	6.1	7.5	8.8	8.7	8.5	-8.7
zachodniopomorskie	23.8	22.7	17.2	11.5	9.5	10.4	12.3	11.8	10.9	-12.9

Source: Eurostat database

* in percentage points

In the period 2004-2012 improvements on the labour market (measured with the reduction of the unemployment rate) were largest in regions where the situation

was and remained not too good: *warminsko-mazurskie* (reduction by 12.8pp) and *zachodniopomorskie* (12.9pp), but also in regions where improvements were significant: *lubuskie* (15.9 pp) and *dolnoslaskie* (15.6 pp) (see Table 3.9.).

The group of regions with an unemployment rate above the average in the same period of time includes: *zachodniopomorskie*, *warminsko-mazurskie*, *dolnoslaskie*, *kujawsko-pomorskie*, and *swietokrzyskie*. The region of *Lodz* is an interesting case: the unemployment rate in the period 2004-2011 remained slightly lower than the average for Poland, only exceeding the average by 1 pp in 2012.

It is typical for the Polish labour market (and also for the markets in other countries) that regional capitals and bigger towns are the centres of the regional/local labour markets, which drain human resources (in particular highly educated persons, with big development potential) from weaker, especially peripheral, local labour markets. At the same time, we observe people moving out from the city centres to the suburbs. For the majority of regions the negative migration balance is accompanied by a positive balance for their neighbouring sub-regions/counties; streams of settlement-driven migrations cumulate around bigger centres in regions.

When we compare the unemployment rate in regional capitals with the average for given regions⁵¹¹, we can conclude that in all regions in the period 2004-2012 the rate was lower in the capital of the region than in the region itself. The smallest divergence was recorded in the *lodzkie* and *podlaskie* regions (1.9 pp and 1.5 pp respectively), while the biggest was recorded in the *warminsko-mazurskie* (12.9pp in 2012, meaning that *Olsztyn* is an island of low unemployment in the region). The lowest unemployment rate in 2012 was recorded in *Poznan* (4.2%) and *Warsaw* (4.4%), while the highest in *Bialystok* (13.1%), *Lodz* (12.1%), and *Szczecin* (11.1%) (see Table 3.10.).

⁵¹¹ This is practically the only synthetic measure, reflecting the condition of the labour market, available in the Polish public statistics at the level of counties (*poviats*). We should also stress, that data concerning the unemployed in counties are collected by County Labour Offices and used for calculating the rate of registered unemployment. Data quoted above, concerning regional level come from the Labour Force Survey. Due to differences in how the status of an unemployed is defined by a Labour Office and in the LFS, unemployment rates vary (in years 2004-2012 the rate of registered unemployment in regions was higher than the LFS unemployment rate).

Table 3.10. Unemployment rate in the capitals of regions in the period 2004-2012 (in %)

Region	Capital city	2004	2005	2006	2007	2008	2009	2010	2011	2012
lodzkie	Lodz	18.4	16.4	11.7	8.5	6.8	9.6	10.0	11.0	12.1
mazowieckie	Warsaw	6.2	5.6	4.6	2.9	1.9	2.8	3.5	3.7	4.4
malopolskie	Krakow	7.5	7.0	5.5	3.8	2.8	4.1	4.7	4.8	5.9
slaskie	Katowice	7.7	7.1	5.4	3.3	1.9	3.3	3.8	4.2	5.2
lubelskie	Lublin	12.4	12.3	10.7	8.2	7.4	9.0	9.6	9.4	10.0
podkarpackie	Rzeszow	9.4	9.2	8.1	7.3	5.9	7.2	7.6	7.6	8.2
podlaskie	Bialystok	13.3	13.2	10.7	7.9	7.8	11.7	12.3	12.4	13.1
swietokrzyskie	Kielce	15.7	14.4	12.1	10.0	9.6	10.6	10.6	9.9	10.7
lubuskie	Gorzow Wielkopolski	17.9	14.9	8.9	6.1	4.2	7.7	8.1	9.4	9.3
wielkopolskie	Poznan	6.7	6.2	5.0	2.9	1.8	3.2	3.6	3.6	4.2
zachodnio-pomorskie	Szczecin	15.3	14.1	11.8	6.5	4.3	8.5	9.7	9.9	11.1
dolnoslaskie	Wroclaw	12.3	10.9	8.0	4.5	3.3	5.1	5.5	5.0	5.8
opolskie	Opole	9.9	9.1	8.5	5.3	4.4	5.9	6.4	6.2	7.1
kujawsko-pomorskie	Bydgoszcz	11.4	10.8	8.4	6.2	4.9	7.6	8.0	7.9	8.5
	Torun*	13.2	12.0	9.8	6.3	6.1	8.5	8.2	8.1	9.5
pomorskie	Gdansk, Gdynia, Sopot**	10.7	9.0	6.0	3.2	2.4	4.9	5.4	5.4	6.3
warmińsko-mazurskie	Olsztyn	10.8	9.2	6.8	4.4	4.3	7.3	6.9	7.2	8.3

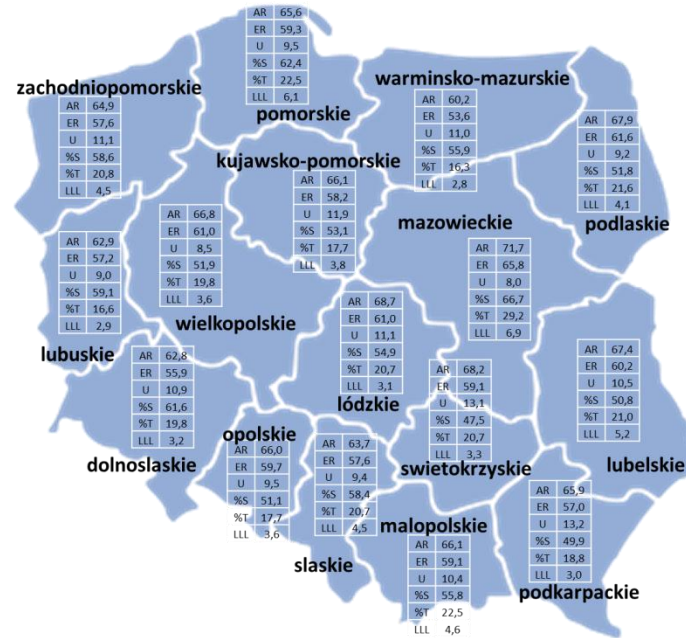
* In the kujawsko-pomorskie region there are two regional capitals: Bydgoszcz where the Governor of the region is based and Torun where is the Marshal Office of the region

** Gdansk is the capital of the pomorskie region, but because of the specificity of the Tricity agglomeration including Gdansk, Gdynia, and Sopot, our analysis covers all the three cities (the unemployment rate is the average for the three cities).

Source: Local Data Bank database, Central Statistical Office, Warsaw

Different situation and potential of regional and local labour markets in Poland importantly impact the emerging and functioning of the local production systems. The analysis demonstrates that the mazowieckie region performs the best in Poland, reaching the best results in almost all indicators.

Figure 3.2. Main labour market indicators by regions in 2012



- AR – Activity Rate
- ER – Employment Rate
- U – Unemployment Rate
- %S – % employed in services
- %T – % population with completed tertiary education
- LLL – % people aged 20-64 participating in lifelong learning

Source: Eurostat database and Local Data Bank database, Central Statistical Office, Warsaw

The potential of that region is clearly connected with the position of Warsaw, which has the status of a metropolis and is the best networked city in Poland. Compared to the other regions, the wielkopolskie region also demonstrated a big potential.

The regions with the biggest difficulties are the warmińsko-mazurskie and the zachodniopomorskie ones. Difficulties are faced also by the podkarpackie and lubuskie regions. The development of vigorous local production systems in these regions may prove to be a catalyst for the economy, taking into account the potential of these regions compared to the country average. For regions with high potential, LPS may help them to reinforce their leading positions in the Polish economy.

3.9. Policies for supporting and financing clusters as economic and institutional conditions for the functioning of LPS in Poland

The increasing interest and attempts to shape a cluster policy result from the increasing popularity and importance of the concept of a cluster as a source of competitive advantages for individual operators, regions and nations. Clusters, as real drivers of growth, have become the point of interest of the public authorities at various levels and their support is a fundamental element of the contemporary regional development policy.

Supporting clusters is a multifaceted policy, which may be delivered at various levels: local, regional, national, and even international. The policy consists of a combination of deliberate actions designed to create new or stimulate the development of already existing clusters. The actions may refer to various aspects. They may: focus on the development of human resources' skills and competences; initiate industry-university collaboration, increase R&D and innovation funding, improve the business institutions. Since the clusters are a broad category, differentiated with respect to their structure, industry and development stage, it is hard to speak of a single policy model in supporting them. In practice we need some optimum models and tools suitable to the specific conditions.

3.9.1. Instruments of cluster policy in Poland

Supporting clusters is one of the policy strands of the economic development policy in the European Union. At Community level, but also at national one (in Poland as well) the cluster policy is developed in line with the so called bottom-up approach, meaning that the most active entities engaged in the development of a cluster should be local companies with the State assisting them only by, e.g., providing appropriate institutional infrastructure or organising selective support programmes. Studies show that public programmes, which support the development of the clusters in most cases, assume one of the following objectives⁵¹²:

- enhanced cooperation among economic operators and developing collaboration networks with the business environment and the R&D sector;
- developing of an institutional environment that provides services adjusted to the needs and challenges faced by the enterprises.

The programmes may impact the development of the clusters directly or indirectly by creating a “friendly” environment for more innovation in the enterprises and for their cooperation.

⁵¹² Regional Clusters in Europe, Observatory of European SMEs 2002/no.3, European Communities, 2002.

In the overview of the cluster policy instruments in Poland we should point to their specificity, which is important for further analysis. The policy combines elements of various sectoral policies: regional, innovation, education, industrial, science and technology or SME policy. At national level the cluster policy in Poland is not identified as an independent policy.⁵¹³ The analysis focuses on the catalogue of the major and most frequently highlighted instruments of its delivery.

The need to support the clusters and to develop them is reflected in the strategic document drafted by the Ministry of Economy and adopted by the Council of Ministers on 4 September 2006: *Directions for increasing innovativeness of Polish economy for the period 2007-2013*. The document in its strategic axis *Infrastructure for innovation* highlights the importance of the support for joint entrepreneurs network operations aimed at the delivery of innovative undertakings, also by stimulating the development of clusters.⁵¹⁴ The Ministry of Economy will also support the clusters through its *Innovation and Economic Efficiency Strategy*, and through the *Enterprise Development Programme until 2020*, (this is the executive instrument of the strategy). Priority 2 of this document, *Cooperation for innovation* (concerning the goal – *Stimulating innovation by enhanced efficiency of knowledge and labour*) is supposed to be delivered by fostering and developing clusters.⁵¹⁵

At national level the Operational Programme Innovative Economy, 2007-2013 (Polish abbr. PO IG) is an important instrument for clusters' support. It is directed at enhancing innovation in the economy based on the EU resources from the Structural Funds and from the Cohesion Fund. The Programme offers direct support to companies, R&D units and business environment organisations and provides systemic support, thus ensuring the development of the institutional environment of the innovative businesses. Under PO IG clusters may receive support from Measure 5.1 "Support for cooperative connections of supra-regional importance" or Measure 5.2 "Support for pro-innovative business support networks of supra-regional importance". The first is the most important as it is designed to foster the competitiveness of the economic operators by supporting cooperative relations between enterprises and between enterprises and R&D units, which contribute to the transfer and diffusion of knowledge and innovation between cooper-

⁵¹³ On top of that, in government documents the notion of a cluster is treated instrumentally, as one of the tools of achieving assumed goals of innovation policy (as an element of infrastructure for innovation).

⁵¹⁴ *Directions for increasing innovativeness of Polish economy for the period 2007-2013*, Ministry of Economy, Warsaw 2006, p. 79.

⁵¹⁵ *Programme rozwoju przedsiębiorstw do 2020 roku*, Projekt, Ministerstwo Gospodarki, Warszawa 2013, s. 67.

ating entities.⁵¹⁶ Measure 5.2 supports science and technology parks, technology incubators, technology transfer centres, etc.

In addition, the Operational Programme Human Capital, 2007-2013 (Polish abbr. PO KL), and in particular its Measure 2.1 “Development of human resources for a modern economy”, is mentioned as another instrument of cluster policy, which offers support from the EU resources. In this case indirect support to clusters consists of improving the competitiveness of the enterprises through increased investment in human capital, improved quality and availability of training and advisory services, which assist the development of the entrepreneurship.⁵¹⁷

Clusters’ development is additionally supported from the Operational Programme Development of Eastern Poland.⁵¹⁸ It may be delivered through Measure 1.4 “Promotion and cooperation”, under the component “Cooperation”. The Measure supports projects that develop cooperation networks and also those connected with the identification and development of clusters.

Applications for all the above Measures are to be filed with the Polish Agency for Enterprise Development and under the PO IG assistance is granted to supra-regional clusters, meaning that co-financing is available only to projects implemented by final beneficiaries operating in two or more regions (voivodeships). Potentially support may be received only by strong and extensive clusters. Regional clusters, located in one region, may apply for support from the Regional Operational Programmes (ROP). The ROP for 2007-2013 are mentioned as the primary instrument of the cluster development policy at regional level. The analysis of the documents in individual voivodeships shows that projects initiating co-operative relations and investment projects providing necessary technical background for such relations stand the biggest chances of receiving support. The regions have different approaches to the cluster policy. Some of them open up direct support possibilities dedicating special measures to them. Some combine the cluster support with the development of entrepreneurship or business support institutions or with the development of relations between businesses and the R&D sector. There are others, which do not have any specific measures but the priority of the objective is high, as they make it an important criterion for project selection. In some regions, regional operational programmes (similarly to the regional de-

⁵¹⁶ Because of the EU competition policy, the following industries are excluded from the support: agriculture, hunting and forestry, fishing and aquaculture, manufacturing and marketing of products imitating or replacing milk and dairy products, synthetic fibres, coal mining, steelworks and shipbuilding.

⁵¹⁷ Kierunki i polityka rozwoju klastrów w Polsce. Draft, Ministry of Economy, Warsaw 2009, pp. 21-22.

⁵¹⁸ The Programme covers five regions: warmińsko-mazurskie, podlaskie, lubelskie, świętokrzyskie and podkarpackie.

velopment strategies and regional innovation strategies also treated as cluster support instruments at regional level) identify some priority industries or clusters, and support them through the allocation of structural funds. Finally, some regional authorities completely ignore the possibility to use the instrument in developing clusters and do not include them into their ROP. Only one region (zachodniopomorskie/Western Pomerania) does not identify any support to clusters or cluster initiatives.⁵¹⁹ In accordance with the analysis outlined in the *Directions and assumptions of cluster policy in Poland until 2020* four regions have separate measures in their ROP to support clusters (świętokrzyskie, wielkopolskie, mazowieckie and warmińsko-mazurskie). The remaining ones (with the exception of the zachodniopomorskie) act to support these initiatives (podkarpackie, podlaskie, lubelskie, małopolskie, łódzkie, dolnośląskie, śląskie, opolskie, lubuskie, kujawsko-pomorskie, pomorskie).⁵²⁰

There are instruments, which do not make direct references to the clusters but provide support to the establishment of local partnerships⁵²¹ and cooperation networks between business and R&D units⁵²² or to the implementation of joint R&D projects of companies and research units.⁵²³ These instruments, however important for the cluster support, can hardly be directly included in the cluster policy.⁵²⁴

When it comes to the creating of the cluster policy, special economic zones may become an important tool⁵²⁵ as areas contributing to the development of interactions and cooperation between the economic operators. Hence the question concerning the development of special economic zones within the clusters seems justified. Pursuant to the document of the Ministry of Economy of 2009 *The Concept of the development of Special Economic Zones*, clusters are included in the special economic zones' policy in Poland. The investments eligible for support under the special economic zones include investments in cluster development. In some cas-

⁵¹⁹ M. Dzierżanowski (ed.), *Kierunki i założenia polityki klastrowej w Polsce do 2020 roku. Rekomendacje Grupy roboczej ds. polityki klastrowej*, Polish Agency for Enterprise Development, Warsaw 2010, p. 48.

⁵²⁰ Ibidem, p. 49.

⁵²¹ Under Measure 8.1.2. PO KL "Support to adaptation and modernisation processes in the region".

⁵²² Under Measure 8.2.1. PO KL "Support to cooperation of scientific environment and enterprises"; sub-measure 8.2.2. PO KL "Regional innovation strategies"

⁵²³ Measures 1.4-4.1 of PO IG "Support for implementation of R&D results and target projects".

⁵²⁴ M. Dzierżanowski, *Raport otwarcia nt. polskiej polityki klastrowej, "Polskie klastry i polityka klastrowa"*, PARP, Warsaw, p. 18.

⁵²⁵ Special economic zones are established based on the Act of 20 October 1994 on special economic zones are separate administrative, uninhabited territories of the Republic of Poland where economic activities may be pursued on more favourable terms (laid down in law). [Act of 20 October 1994 on special economic zones, Dz.U. 1994 No. 123 item 600]

es, support to clusters is the only criterion for giving permits to operate in such zones.⁵²⁶ In addition, in order to work out a complex support mechanism for the development of the special economic zones as clusters, the Ministry of Economy delivers a pilot programme aimed at the establishment and development of formalised cluster initiatives in given zones, characterised by a high level of regional specialisation in selected industries.⁵²⁷

Moreover, the cluster development strategy may be considered a specific instrument of the cluster policy. The tool is popular among clusters as it allows them to fully exploit individual abilities to achieve assumed goals. The Strategies delineate common operational directions and enable more effective target-oriented cooperation. In accordance with the report *Innovation and enterprise centres in Poland* of 2010, 43% of the existing clusters declared medium-term development strategies listing the following among their major strategic goals: delivery of joint innovation and investment projects, knowledge and technology transfer, attracting new members, fostering cooperative relations, promoting the brand, developing international cooperation, and cluster internationalisation.⁵²⁸

3.9.2. Cluster financing in Poland

Clusters may be financed from private (usually coming from cluster members) and public resources available under various assistance programmes at regional, national and international levels as target subsidies (for concrete actions) from regional and national institutions (e.g., local self-governance, business support institutions, regional development agencies)⁵²⁹. It is hard to point to one universal model of cluster financing, however, as Polish experiences show, public resources prevail. The policy of the West European countries shows that the situation is unfavourable as, in the long-term perspective, too much subsidies for such initiatives may gradually reduce the efficiency of the cluster management. However, interestingly enough, according to the studies quoted in the publication *Cluster initiatives: effective actions and strategic development* Poland has got the lowest ratio of public financing of cluster initiatives among all studied countries from Central Europe and Scandinavia. The above may be due to the fact that some of the Polish

⁵²⁶ The concept of the development of Special Economic Zones, Ministry of Economy, Warsaw 2009, pp. 13-16.

⁵²⁷ M. Dzierżanowski, Raport otwarcia nt. polskiej polityki (...), op.cit., p. 32.

⁵²⁸ A. Nowakowska, Z. Przygodzki, Klastry, [in] Ośrodki innowacji i przedsiębiorczości w Polsce. Raport 2010, K.B. Matusiak (ed.), Polish Agency for Enterprise Development[PARP], Warsaw 2010, p. 173.

⁵²⁹ M. Koszarek (ed.), Inicjatywy klastrowe: skuteczne działanie i strategiczny rozwój, PARP, Warsaw 2011, p. 116.

cluster arrangements are not eligible for subsidies, because their management is not institutionalised.⁵³⁰

Similarly to the support instruments, sources of clusters' funding depend, e.g., on the industry profile or the development stage. The use of public resources is the most justified and prevails in the early development stages of the cluster initiatives related to the cooperation among the entities. Financial public support may consist of grants to projects or institutional funding, e.g., by delegating administrative staff of the agency of regional development to work in the cluster office or by making office space available.

Among the types of public funding to clusters, the most important are the resources from the Structural Funds available under the operational programmes, which support different cluster initiatives. Depending on the type of the programme, under which financial assistance is granted, it may take the form of financial coordination and network building (i.e., the cost of the office, communication platform, generating innovation and analyses, cost of the coordinating staff) or financing for individual actions undertaken under the cluster initiatives, such as specialist training or advisory services, analytical works commissioned to external entities, investment in laboratories and R&D works.⁵³¹ In accordance with the above, the most important programme at national level, dedicated to the cluster development support is the Operational Programme Innovative Economy 2007-2013, Measure 5.1. Its allocation accounts for EUR 104.3 m⁵³² Under the Operational Programme Development of Eastern Poland for the period 2007-2013, for projects in the sub-measure "establishing and developing clusters" in Measure 1.4 "Promotion and cooperation" of the "Cooperation" component the allocation is EUR 14.04 m euro.⁵³³ Operational Programme Human Capital 2007-2013 also offers support to clusters through Measure 2.1 "Development of human resources for modern economy", thus making available EUR 527 mio.⁵³⁴ Additionally, significant funding for the clusters' development comes from 16 Regional Opera-

⁵³⁰ T. Lämmer-Gamp, G. Meier zu Köcker, T. Christensen, *Clusters Are Individuals Creating Economic Growth through Cluster Policies for Cluster Management Excellence*, Berlin 2011, Polish translation: Polish Agency for Enterprise Development, *Klastry i ich indywidualizm*, Warsaw 2011.

⁵³¹ S. Szultka (ed.), *Klastry w Polsce – raport z cyklu paneli dyskusyjnych*, Polish Agency for Enterprise Development, Warsaw 2012, p. 74.

⁵³² *Szczegółowy Opis Priorytetów Programu Operacyjnego Innowacyjna Gospodarka, 2007-2013* [Detailed description of priorities of Operational Programme Innovative Economy], Ministry of Regional Development, Warsaw 2013, p. 108.

⁵³³ *Szczegółowy Opis Osi Priorytetowych Programu Operacyjnego Rozwój Polski Wschodniej 2007-2013*, Ministry of regional Development, Warsaw 2013, p. 38.

⁵³⁴ *Szczegółowy Opis Priorytetów Programu Operacyjnego Kapitał Ludzki 2007-2013*, Ministry of Regional Development, Warsaw 2013, p. 65.

tional Programmes. In this case, depending on the types of the actions to be supported, the amounts available vary from ca. EUR 1.5 m in Malopolska to more than EUR 115 m in podkarpackie.⁵³⁵

Membership fees are the most popular private financing sources for clusters in Poland. Cluster members are regularly charged for various services (e.g., increation, promotion, etc.). Another potential commercial source may be the share in revenue from joint patents (e.g., in technology clusters), public contracts awarded in public procurement, resources saved as a result of jointly negotiated purchases of goods and services. External investors may also invest in the cluster development (e.g., business angels, *venture capital* or sponsorship of big corporations), which, however, refers mostly to the funding of different business initiatives with the perspective of potentially high return on investment.⁵³⁶

The international programmes for cluster financing may be also interesting for the Polish clusters. They support projects in various areas. Each project has its own specificity and priorities, but all of them contain elements of support for the cooperation between companies, with a view to improving innovation. These international programmes, offering funding to Polish clusters and to individual entrepreneurs can be divided into⁵³⁷:

- research programmes, which focus on R&D aspects and on the development of new technological products as a result of collaboration. They are addressed to research units but also to entrepreneurs in all European regions. An example may be the 7th Framework Programme of Research and Technical Development, 2007-2013. Under this programme clusters are mainly interested in its measure connected with technological problem solving for small innovative groups of SMEs. On average a project lasts 1-3 years and has a budget from EUR 0.5 m to EUR 4 m (depending on the project).
- transborder programmes including operators based near the state borders of some states. An example is the *Southbaltic Programme*. The Baltic Eco-energy Cluster benefited from such a programme. The financial support provided by these programmes varies from EUR ca. 0.5 m to EUR 1 m.
- cross-border programmes for operators based in specific parts of Europe (independently of the location of the region in relation to the border), e.g. the *Baltic Sea Region Programme*. Usually the projects are big, include

⁵³⁵ See the detailed description of Priority Axes of Regional Operational Programmes in regions.

⁵³⁶ S. Szultka (ed.), *Klastry w Polsce – raport z cyklu (...)*, op. cit., pp. 76-77.

⁵³⁷ For more see: M. Koszarek (ed.), *Inicjatywy klastrowe: skuteczne działanie (...)*, op. cit., pp. 125-128.

several partners from several countries and their average value is from EUR 2 m to EUR 5 m. Clusters may get funding for innovation-related activities and for promoting the attractiveness of their regions. Another example is the *Central Europe Programme*. Here a project may have the value of EUR 1 m to EUR 5 m. Eligible actions include the development of a joint international strategy and operational plan for a given technology, or establishment of cooperation mechanisms among partners.

- interregional programmes for entities in various regions across Europe, e.g., the Interreg IVC Programme.

3.9.3. Concluding remarks

Working out a coherent and comprehensive cluster support policy is a big challenge, as the instruments addressed to the clusters are usually horizontal and belong to different areas of the economic policy. The task becomes even more difficult, taking into account that a cluster policy copied from another country may turn out to be dangerous and ineffective without taking into account local social and economic specificities and legal framework.

The existence of a comprehensive cluster policy could foster the competitiveness of the Polish economy. The need is observed by many experts in different fields. Thus, more and more publications emerge with recommendations for local authorities and central administration bodies on how to shape and implement the policy in question.⁵³⁸ In both cases the main goal should be to consolidate, coordinate and directly support the initiatives of crucial importance. When it comes to funding, it is recommended to limit public funding to clusters in favour of funding projects submitted by clusters (the so called shift from funding clusters to funding concrete initiatives).⁵³⁹ One possible problem in Poland may consist in the fact

⁵³⁸ On the other hand, in the discussion on cluster policy one can also identify equally common opposite opinions, that not the separate policy, but the cross-sectoral approach to cluster policy is highly preferred, since cooperation between clusters operating in various economic sectors can create an added value (see: Sokołowicz, M. E., *Strengthening Cluster Policy Cooperation in Europe: Looking Ahead to a New Policy Agenda*. Conference Report, copyright by Polish Agency for Enterprise Development (PARP), Warsaw 2011, http://www.pi.gov.pl/PARPFiles/file/POLISH_INNOVATION_PORTAL/Tresci_stale/Polish_Presidency_Conference_Report_.pdf, accessed 10.09.2013; Sokołowicz M. E., *Cluster policy in Europe as a tool of supporting „cooperating entrepreneurs”*, [in:] Martin. C. Rkibi, T. (eds.), *L'Entrepreneur face aux politiques Publiques Européennes*, Travaux Scientifiques du Réseau PGV, PGV / ISLA Campus Lisboa, Lisboa 2012, pp. 242-259.

⁵³⁹ Hołub-Iwan, J. (ed.), *Cluster Benchmarking in Poland – 2012*. General report, Polish Agency for Enterprise Development, Warsaw 2010. Available at: http://www.pi.gov.pl/PARPFiles/file/POLISH_INNOVATION_PORTAL/Clusters/Raport_eng.pdf. Accessed 04.08.2012, pp. 177-183.

that cluster support policy, also in terms of their funding, is strongly dependent on the availability of EU funds. A change in the funding model for cluster initiatives remains an important challenge for the Polish economic policy in the near future.

The above issues have not exhausted the catalogue of proposed postulates related to the clusters. There are many issues that need to be clarified, thus becoming interesting areas for further research and analyses.

3.10. The case of energy clusters: functioning of Polish LPS in an environmental context

Modern forms and methods of cooperation within network arrangements such as clusters offer new opportunities for the delivery of environmental objectives and solving environmental problems. Impulses to start cooperation within environmental clusters, besides the economic goals (i.e., the wish to improve international competitiveness and reduce transaction costs⁵⁴⁰), clearly point to environmental and social objectives.

The partnership of various groups of stakeholders acting for the improvement of the quality of the environment by developing product, technological and organisational innovations, their dissemination, approval and implementation is especially important and serves the creation and execution of environmental policy at national, regional and local levels. Eco-innovation⁵⁴¹ often becomes a platform for cooperation between environmental clusters as they include “technologies, products and services that mitigate the threat to natural environment, which prevent or limit adverse environmental effects and help to effectively use environmental resources”,⁵⁴².

This Chapter focuses on the environmental clusters, which include entities representing the operators from the “green industry”⁵⁴³ – green products and technologies, including green energy⁵⁴⁴. Special attention is paid to local production sys-

⁵⁴⁰ Gorynia M., Jankowska B., *Klasy a międzynarodowa konkurencyjność i internalizacja przedsiębiorstwa*, Difin, Warsaw 2008.

⁵⁴¹ We must note that eco-innovation may also be found in clusters not necessarily oriented at environmental issues, e.g., textile or aviation clusters.

⁵⁴² Eco innovation and national cluster policies in Europe. A Qualitative Review. Available at: <http://www.clustercollabouration.eu/documents/10147/23229/ECOII,+D094,+EcoInnovation+Summary+Report+Policies,+25Jul2011.pdf>. Accessed 28.08.2013.

⁵⁴³ Eco - Innovation Observatory 2011, www.eco-innovation.eu, Accessed 18.08.2013.

⁵⁴⁴ Eco-innovation in green industry refers to: renewable energy sources, water and waste management, recycling, soil recovery, services in environmental protection and monitoring, European Investment Fund 2010 [cited from:] Eco-innovation and national cluster policies in Europe. A Qualitative Review. Available at: <http://www.clustercollabouration.eu/documents/10147/23229/ECO-II,+D09-4,+Eco-Innovation+Summary+Report+Policies,+25Jul2011.pdf>. Accessed on 28.08.2013.

tems (clusters) in the eco-energy industry, which the European Union is considered highly innovative. We outline the conditions for the establishment of such LPS and present an overview of different domestic studies in the area, together with selected examples of energy clusters.

In our work we used our own studies and materials from the studies conducted by the Polish Agency for Enterprise Development (Polish abbr. PARP)⁵⁴⁵ and the Polish Business and Innovation Centres Association (Polish abbr. SOOIPP) available in the public domain.

3.10.1. Origins and conditions for the development of LPS in the energy sector in Poland

The dynamic development of the energy industry clusters in Poland progresses under circumstances created by the combination of numerous political, environmental, economic and social factors. External and internal conditions are important for their creation and further operations. Tradition, easy use and access to fossil fuels, used as a primary source of energy, produce disproportions between the share of energy from renewable sources in Poland and in other EU countries thus creating a gap, which, pursuant to the EU directives, should be gradually eliminated. Legal and organisational frameworks are of key importance as they are related to international decisions concerning climate protection and the development of renewable energy industry incl. EU adopted standards. Natural conditions in Poland are favourable for the development of energy generation from renewable sources. The economic conditions, combined with the demand of products and technologies of renewable energy industry and the potential of Polish businesses in this industry (which have developed the market of “green technologies”), also provide favourable grounds. Among the social conditions we should mention: increased environmental awareness; raising interest of individuals, public entities and companies in modern energy technologies. Intensified promotion and support for the production of energy from renewable sources significantly influenced the cooperation of the interested entities, such as: companies of the renewable energy industry sector, R&D units, public institutions, mainly local governments.

The origins of the energy clusters in Poland should be attributed to different synergy processes. The most important of them include:

1. Little use of renewable energy sources in Poland and insufficient dynamics of the changes in the context of the EU energy policy (Table 3.11.). Poland faces the challenge of making up for the lagging behind in the use

⁵⁴⁵ Mapa klastrów 2008 i jej kolejne aktualizacje, <http://www.pi.gov.pl/PARP/data/klastry/index.html/>, accessed on 10.08.2013.

of renewable energy sources and complying with the EU requirements concerning the diversification of the energy sources. The strategic goal of the Polish policy consists in increasing the use of renewable energy sources to arrive at its share of 15% in the final gross consumption of energy in 2020. The share of electricity generated from renewable energy sources in sold energy should achieve 12.9% in 2017⁵⁴⁶.

Table 3.11. Energy from renewable sources in EU–27 and in Poland

	2004	2005	2006	2007	2008	2009	2010
Share of energy from renewable sources in primary energy							
<i>EU total [%]</i>	12.0	12.9	14.1	15.6	16.7	18.3	20.1
<i>total in Poland [%]</i>	5.5	5.8	6.1	6.7	7.6	9.0	10.2
Share of electric energy from renewable energy sources in gross consumption of electric energy							
<i>in EU [%]</i>	13.7	13.6	14.2	15.1	16.4	18.3	19.9
<i>in Poland [%]</i>	2.1	2.6	2.8	3.5	4.3	5.8	7.0

Source: own calculations based on *Energia ze źródeł odnawialnych w 2011 roku [Energy from renewable sources in 2011]*, Central Statistical Office, Warsaw 2012, www.stat.gov.pl

2. Reconciling the energy security of Poland with the environmental measures resulting from the Europe 2020 Strategy. In this context, the key problems and threats to the energy policy in Poland are: “.....unsustainable energy balance until 2016, expected increase in prices caused by the need to buy emission rights and to make investments, implementation of measures meeting strict climate and environmental requirements, aging infrastructure and low energy efficiency”⁵⁴⁷.
3. The need to improve the energy efficiency, in particular the use of smart grids and developing distributed energy generation, also by promoting the so called “prosumer energy”. The successful delivery of energy-related and environmental goals are related to the efficient operations of

⁵⁴⁶ „Strategia rozwoju energetyki odnawialnej” (2001 r.), „Polityka energetyczna Polski do roku 2030” (2009), „Programme dla elektroenergetyki” (2006) (in Polish)

⁵⁴⁷ Polityka energetyczna Polski – priorytety polskiej energetyki, *Nowa Energia* 2(26)/2012 p. 7.

many entities at national, regional and local levels and to their effective collaboration⁵⁴⁸.

4. Inclusion by the European Commission of the renewable energy sources into the so called “lead markets”, markets of future products and services, on which clusters and cluster initiatives may develop. The renewable energy sources industry is the fastest developing one in the global energy production and is becoming an important element of the equipment and supplies manufacturing of the green technologies⁵⁴⁹.

In Poland green industry entities are developing dynamically. For example, in 2012 there were ca. 70 - 80 businesses offering more than 500 types of solar collectors. The market of solar collectors recorded a turnover exceeding PLN 670 m, and, importantly, domestic companies enjoy the biggest share in this market (33%)⁵⁵⁰.

5. Financial support to clusters. In the years 2007–2008 clusters could receive financing from participation in a pilot programme delivered by PARP “Support to clusters” or by applying for funds under the Integrated Regional Development Operational Programme, Measure 2.6. Regional Innovative Strategies and Knowledge Transfer. The new programming period 2007-2013 ensured the availability of structural funds under the Operational Programme Innovative Economy, Measure 5.1 Support for the development of supra-regional cooperative relations.
6. Enhanced public awareness when it comes to the use of the natural potential for energy generation (wind, sun) and financial support that mobilises the implementation of individual investment projects in renewable energy, especially solar energy (currently among the renewable energy sources technologies in Poland the solar energy ranks second, after the wind energy,⁵⁵¹).

3.10.2. Overview of Polish studies on energy clusters

Recently in Poland we witnessed the dynamic development of clusters and of studies devoted to them. So far, the studies on clusters were carried out mainly in

⁵⁴⁸ Strategy “Bezpieczeństwo Energetyczne i Środowisko” Perspektywa 2020 r., draft of 18 May 2011, p. 3, www.mos.gov.pl

⁵⁴⁹ Analiza możliwości rozwoju produkcji urządzeń dla energetyki odnawialnej w Polsce dla potrzeb krajowych i eksportu, Warsaw, November 2010, EC BREC IEO, p.10.

⁵⁵⁰ A. Więcka, A. Santorska, Rozwój rynku kolektorów słonecznych w Polsce w 2012 r., <http://www.solarforum.ieo.pl/pl/prezentacje-z-vi-forum/13-maja>, accessed on 15.08.2013.

⁵⁵¹ Ibidem.

the context of the regional policy or of the innovation policy and the environmental issues were on their margins.

Studies of 2010, carried out within the project “Cluster benchmarking in Poland”⁵⁵² analysed in detail 47 clusters, including: 4 clusters which declared the eco-energy industry as their core industry, 2 clusters dealing with energy-saving constructions or environmental protection and 2 clusters dealing with energy generation. Thus, more than 1/5 of clusters included in the study directly focused on a broadly understood environmental protection. The most important strategic goals of these clusters include:

- developing technologies using renewable energy sources;
- enhanced cooperation (internal and external) in environmental protection;
- promoting environmental behaviour⁵⁵³.

The clearly formulated goals exposed the “environmental” aspect of the strategic activities and put emphasis on the areas of cooperation. The main idea, is acting for the protection of the environment in economic, social and environmental aspects⁵⁵⁴.

Studies conducted in 2011 helped to identify 150 cluster-like initiatives in Poland; 48.6% of them were clusters and the rest - cluster initiatives. Almost 15% of surveyed local production systems declared energy generation (or another related industry) as the leading industry for cooperation. 12 out of this group declared the renewable energy sources as their business area; among them 1/3 also listed energy generation and energy-saving technologies as auxiliary business areas. In the remaining ten clusters, specialisation was identified in many ways: from eco-energy generation through energy-saving methods in construction up to the implementation of new energy technologies. One cluster used the term “environmental protection”⁵⁵⁵.

⁵⁵² Systemic Project of the Polish Agency for Enterprise Development „Rozwój zasobów ludzkich poprzez promowanie wiedzy, transfer i upowszechnianie innowacji” financed from the resources of the European Social Fund under the Operational Programme Human Capital.

⁵⁵³ Deloitte, Cluster Benchmarking in Poland – 2010. Survey report, Polish Agency for Enterprise Development, Warsaw 2010. Available at: <http://www.parp.gov.pl/files/74/81/380/9762.pdf>. Accessed 04.08.2012.

⁵⁵⁴ A. Rzeńca, Klastry energetyczne – nowa forma współpracy w ochronie środowiska. Identyfikacja zjawiska w Polsce (to be published); Research Papers of the Wrocław University of Economics.

⁵⁵⁵ M. Feltynowski, A. Rzeńca, Klastry energetyczne w Polsce – diagnoza stanu [in:] Uwarunkowania innowacyjności przedsiębiorstw w kontekście regionalnym i sektorowym. SOOIPP Annual 2012, University of Szczecin, Research Papers no.715, Ekonomiczne Problemy Usług NR 91, Szczecin 2012, pp. 131- 148.

Energy-related local production systems are a new phenomenon in the Polish social and economic space. They started to emerge in 2003. The majority of such arrangements became effective in the period 2006–2009, when 18 out of the 22 studied energy clusters were set up. In recent years many of the initiatives suffer from stagnation. This is a consequence of the project nature of clusters, which reduce or stop their activities when the project funding is over. Thus, “weakness and immaturity of established cooperation networks, combined with the weakness of the instruments that encourage the activities, block their further development. Without mobilising activities under the regional policy and the national innovation and industry policy, further development of clusters in Poland will be considerably hampered”⁵⁵⁶.

Further studies conducted in 2012 identified 44 environmental clusters, whose operations were linked with a broadly understood environmental protection. Most of them operated in the field of the renewable energy sources or in similar industries. In some cases, clusters list renewable energy sources together with other activities, e.g., Water Cluster of Southern Poland (water treatment system, renewable energy sources, water energy). Construction, energy-saving technologies and passive construction, cover another areas of clusters’ activities⁵⁵⁷.

In the last three years (2011-2013) we can observe diversification of the activities of the clusters, although clusters that specialise in renewable energy sources are still dominate. New areas are waste management (e.g., Eastern Waste Cluster, Waste Management and Recycling Cluster) and protection of nature (Animal Protection and Monitoring Cluster). For legal reasons. (changes in waste collecting, disposing and recycling regulations) and as a result of the development of the waste management market, waste management is the most often declared an activity of the “new” environmental clusters.

3.10.3. LPS in the energy sector in Poland – case studies

In order to identify the objectives and specify the operational areas of Polish energy clusters, we analysed three energy clusters: “Bioenergy for the Region”, “Baltic Energy Cluster”, and “Świętokrzysko-Podkarpacki Energy Cluster”. All of them, similarly to the majority of Polish LPS, were established under EU funded projects.

⁵⁵⁶ A. Nowakowska, Rola i wyzwania regionalnych klastrów w Polsce [in:] Materials “Partnerskiej sieci współpracy i wymiany doświadczeń dotyczących interwencji w ramach PO Kapitał Ludzki wspierających realizację Regionalnych Strategii Innowacji INTREGISNET”, Marshal Office in Lodz, Department for Operational programme Human Capital, February 2012, p. 187.

⁵⁵⁷ A. Rzeńca, Klastry ekologiczne jako instrument polityki zrównoważonego rozwoju KPZK PAN Bulletin, (to be published).

In-cluster cooperation takes various organisational and legal forms, such as an agreement or a consortium. It is coordinated by typical R&D units or business environment institutions. In the Świętokrzysko-Podkarpacki Energy Cluster, the role of coordinator is fulfilled by the Świętokrzyskie Centre for Innovation and Technology Transfer, Co. Ltd., whose shareholders are public entities, i.e., the local government of the voivodeship and the Technical University. The Research and Innovation Centre Pro-Akademia (a research NGO of academics and social and economic experts), is the coordinator in the Bioenergy for the Region Cluster (Table 3.12.).

Table 3.12. Characteristics of the analysed energy clusters

	Bioenergy for the Region	Baltic Eco-energy Cluster	Świętokrzysko-Podkarpacki Energy Cluster
Established in	2007	2007	2009
Organisational and legal form	agreement	consortium	consortium
Cluster's coordinator	Research and Innovation Centre Pro-Akademia in Lodz	Robert Szewalski Institute of Fluid-Flow Machinery of the Polish Academy of Sciences in Gdansk	Świętokrzyskie Centre of Innovation and Technology Transfer, Co. Ltd.,
Industry	energy and renewable energy sources	generation of electric/ heat energy, manufacturing equipment for energy industry, new energy technologies	energy
Participating entities	51 entities including 33 enterprises, 8 R&D units, 4 business environment institutions, 6 local government units (4 communes, 2 county starost units)	122 entities including 84 enterprises, 11 R&D units, 13 business environment units, 14 local government units (9 communes, 3 county starost units, 2 Marshal offices)	34 entities including 9 enterprises, 3 R&D units, 5 business environment institutions, 17 local government units (15 communes, 1 county starost and 1 regional government)
Location	Lodz and Mazovian voivodeships	Pomerania and Warmia-Mazurian voivodeships	Świętokrzyskie and Podkarpackie voivodeships
Scope	supra-regional and European	supra-regional	supra-regional

Source: based on own studies and websites of analysed entities: www.bioenergiadlaregionu.eu; www.bkee.pl; <http://klasteroze.it.kielce.pl>; accessed on 05.08.2013.

These clusters, like the majority of the energy clusters, are dominated by enterprises representing more than 60% of all cooperating entities (Bioenergy for the Region and Baltic Eco-energy Cluster). Local government units are also strongly

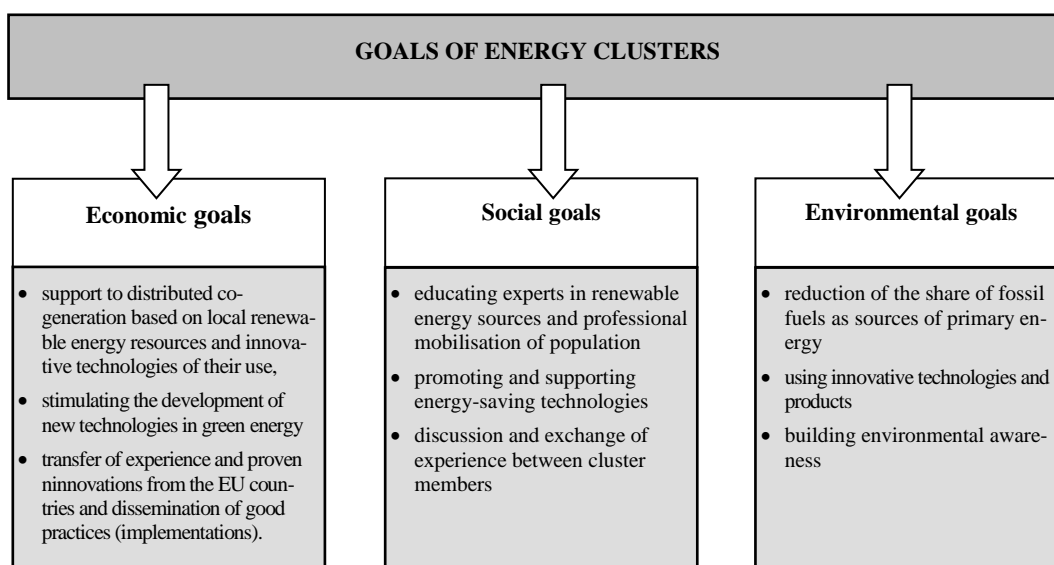
represented in the clusters; in the Świętokrzysko-Podkarpacki Energy Cluster they represent 50% of all entities (Table 3.12.).

Their declared objectives include economic, social and environmental goals, decisive for their activities (Fig. 3.3). The activity areas often intertwine. As a result, the clusters may claim they carry out differentiated initiatives and projects.

One of the important elements of the cluster activities is increation gathering and exchange, and knowledge dissemination not only among cooperating entities. The goal is achieved by:

1. thematic meeting, seminars and conferences;
2. regular meetings, e.g., the Forum of the Cluster “Bioenergy for the Region” held in June 2013 for the twelfth time;
3. establishment of the Regional Promotion and Education Centre for Renewable Energy Sources (“Baltic Eco-Energy Cluster”);
4. training courses, e.g., the Manager of Energy-Saving Construction project aimed at improving and adjusting skills and qualifications of adults from the Lodz voivodeship to the needs of the regional economy in the area of energy-saving construction and the use of renewable energy sources (“Bioenergy for the Region”).

Figure 3.3. Goals and activity areas of the energy clusters



Source: own study based on materials available on websites: www.bioenergiadlaregionu.eu; www.bkee.pl; <http://klasteroze.it.kielce.pl>, accessed on 10.08.2013.

Research studies and implementation projects are important elements leading to the achievement of the objectives adopted by the LPS included in the study. Among such initiatives, attention should be paid especially to pilot projects connected to the infrastructure of the energy generation from renewable sources or parts thereof. The “Baltic Eco-energy Cluster” is the leader of such projects (e.g. a pilot project for a module biogas installation using green fodder in Ornet). The Cluster “Bioenergy for the Region” faces the challenge of constructing a Technology Transfer Centre for renewable energy sources with three leading laboratories: laboratory for biomass and biogas research; laboratory for wind energy research, and laboratory for solar energy research. The project objective is to improve the innovativeness of the companies operating within the cluster and to create jobs in renewable energy industry.

LPS covered by the study stressed the supra-national dimension of the collaboration within them, but their activity goes beyond that and also includes: membership in international cooperation networks (1), organisation of industry-specific trade missions (2), and organisation and participation in training courses, workshops, seminars, and conferences (3). Under the BSR InnoNet (*Baltic Sea Region Innovation Network*) initiative, the Baltic Eco-energy Cluster participates in pilot programmes in eco-energy generation⁵⁵⁸ while the “Bioenergy for the Region” Cluster is, e.g., a member of the “Cluster-Dialogue Germany-Poland” Network, which works for the development of cooperation and economic relations between the members of the renewable energy industry clusters in Poland and in Germany⁵⁵⁹. The “Świętokrzysko – Podkarpacki Energy Cluster” organises industry-specific trade missions for representatives of communes to show them examples of good practices in Europe and local and regional initiatives in renewable energy (Austria, Italy, and Germany (2013), Finland (2012), Belgium and France (2012).

The above characteristics of the selected energy clusters show the broad scope of their operations and the variety of their actions. Several entities cooperating in the clusters concompany the need to develop and support such cooperative arrangements.

Concluding remarks

The contemporary forms and methods of cooperation, such as the local production systems, create conditions favourable for achieving the environmental goals and for the development of companies operating in the field of the protection of the

⁵⁵⁸ <http://www.mg.gov.pl/files/upload/11788/Tekst5Internacjonalizacjaklastrow.pdf>. Accessed on 02.08.2013.

⁵⁵⁹ <http://www.bioenergiadlaregionu.eu/pl/miedzynarodowe-powiazania/dialog-klastrow-energetyki>. Accessed on 05.08.2013.

environment. Thus, the environmental clusters, representing a new, dynamically developing form of cooperation are becoming a vital instrument of the sustainable development policy.

The example of the Polish energy clusters clearly demonstrates the need for development of such type of cooperation arrangements. Whether the energy clusters will become fundamental subjects of the policy for new technologies implementation and to what extent they may become a basis for regional smart specialisations remains an open question.

An economy which effectively uses its resources in an environmentally friendly manner is an important area of the “new” EU policy, which is clearly stressed in the Europe 2020 Strategy. Thus, we should expect the intensification of the energy clusters’ activities. On the other hand, national cluster policy misses recommendations on the eco-innovation and the environmental industry support, which raises questions concerning the durability and efficiency of the cooperation, and the real implementation of the objectives of the Europe 2020 Strategy.

3.11. Economic conditions for the functioning of LPS in Slovakia

One of the most important reasons why LPS/clusters arise is that different actors/companies usually do not have all necessary resources to achieve a certain result (eg. market growth, expansion into new markets, innovative products, etc.). The organisational structure of LPS creates space for connecting various sources relevant to the collective output. Although individual members pursue different interests, these are interdependent. This dependence is the driving force behind the definition of common objectives, common strategies and practices and despite diversity allows the search for common interest.⁵⁶⁰ Even in the Slovak Republic competitiveness is the key factor of forming LPS.

Economic relations in the LPS are formed mainly in three ways:

1. LPS is managed by dominant company, which determines the strategic objectives;
2. LPS operates on the basis of the common interests of all members of the LPS;
3. LPS acts as a "closed circle" – eg. Biomass LPS in Ľubietová.

Property rights are very important for the smooth functioning of LPS, not only in Slovakia, and should be clearly outlined. In the LPS all members must agree and jointly define what the “property of LPS” is. In addition, the property of the LPS

⁵⁶⁰ Štefaničková K. 2013. Klastrová politika a podpora klastrov. Online: <http://konferencie.fmk.sk/2013/klastrova-politika-a-podpora-klastrov/>.

individual subjects and the property of the individuals have to be defined. Last, but not least, intellectual property issues related to the activities of LPS have to be arranged.

In Slovakia, there are three basic ways for LPS or clusters funding: financing from the private sector, public sector funding or a combination thereof⁵⁶¹.

Private sector funding mainly includes membership fees or a registration fee. These can be the same for all members or different depending on the size of the enterprise. In addition, LPS can obtain funding from outside businesses for their participation in projects managed by LPS, as well as for advertising and sponsorship.

Public sector funding means using funds from the Structural Funds and other EU funds. The programmes offering funding to clusters and LPS are:

EU Structural Funds:

- Operational programmes for cross-border cooperation;
- Operational Programme Competitiveness and Economic Growth;
 - o European Territorial Cooperation Programme;
 - o Community programmes;
- Seventh Research Framework Programme;
- Interreg IVC;
- Competitiveness and Innovation Framework Programme (CIP).

The Ministry of Economy and the Ministry of Education, Science, Research and Sport of the Slovak Republic also offer support to clusters and LPS.

In the Resolution of the Slovak Government No. 448/2012 of 5 September 2012 a notice was published for the submission of applications for a subsidy with a focus on⁵⁶²:

- consulting in the design, research and education for the industry;
- increasing the involvement of the business sector in cooperation with scientific and research institutions;
- involvement of the business sector in education in the field of innovative technologies and processes, testing and implementation of prototypes.

⁵⁶¹ ŠMÍD, J. 2004. Strategic significance of the cluster creation for SME in Slovakia. p. 20-23.

⁵⁶² 2013. Ministry of Economy issued a scheme to promote industrial cluster organisations (de minimis aid scheme) Scheme DM - 3/2013. p. 3. On line: <http://www.economy.gov.sk/>.

In the same period, subsidies for scientific and technical services were focused on clusters. The priority areas were:

- improving the quality and control of technological processes and production lines for the industry, using the latest management and increation systems;
- increation and communication technologies aimed at creating a communication platform between the IT industry, public administration and educational institutions in the region with an emphasis on innovation trends;
- service robots for industry, security systems, non-standard applications, smart actuators for robotics and automation systems, increation systems management and diagnostics, technology systems and processes, automation of production systems and processes;
- biodegradation of plastics and its processing;
- construction of building and mining machines for handling timber and biomass;

Applicants could apply for the total support of EUR 250 000. The lowest grant was EUR 20 000, and the highest – EUR 80 000.

The Ministry of Economy of the Slovak Republic is primarily focused on external financial resources for selected activities, which may be obtained in the programming period 2007-2013 from the the Operational Programme Competitiveness and the Programme for Economic Growth of the Ministry of Economy of the Slovak Republic. Resources are allocated to priority 1 Innovation and growth competitiveness – Measure 1.2 Support of common services for entrepreneurs, which aims to improve the conditions for business development and strengthen contacts of SME.

Public private funding which is a combination of the previous methods is the most common in Slovakia. The focus of the cluster/LPS should meet the requirements of the strategic documents of Slovakia and of the regional development documents, in particular the requirements of the Innovation Strategy of the Slovak Republic for the period 2007-2013 and the Regional Innovation Strategies of NUTS III regions.

3.12. Legislative conditions for the functioning of LPS in Slovakia

Creation and functioning of LPS is not explicitly defined in the Slovak law. The only exception is the amendment to the Tourism Act No 386/2011, amending and supplementing Law No 91/2010 on the promotion of tourism, which entered into

force on 1st of December 2011. According to the new wording of § 28⁵⁶³ in addition to the existing funding, tourism organisations can also apply for non-repayable grants from domestic and foreign institutions, including grants from the European Union and other incomes. Examples of the other incomes are: the new instrument of the European Investment Fund JEREMIE (Joint Resources for Micro to Medium Enterprises), Swiss Contribution, Financial Mechanism of the European Economic Area.

According to Act No 386/2011 a regional tourism organisation (form of cluster or LPS) will – in accordance with the provisions of §29(4)(a) – receive a grant in the amount of the aggregate value of selected regional organisation membership fees in the year preceding the previous financial year. The maximum amount of the subsidy will be limited to 90% of the aggregate value of the selected accommodation tax for all members of LPS in the previous financial year. Where a regional organisation is not a member of the regional tourism organisation, the amount of the subsidy will be reduced by 10%. In accordance with §29 subsidies will have no legal claim.

Members of LPS/cluster are governed by the law applicable to business and business-related activities (eg. the environment and work safety, etc.). The list of the basic regulatory documents for companies comprises:⁵⁶⁴:

- Commercial Code 513/1991;
- Act on Safety and Health at Work 124/2006;
- Act on the Protection and Promotion of Public Health 355/2007;
- Social Insurance Act 461/2003;
- Trade Act 455/1991;
- Travel Compensation Act 283/2002;
- Act on Income Tax 595/2003;
- Labour Code 311/2001;
- Employment Services Act 5/2004;
- Act on the use of electronic cash register 289/2008.

The legal forms of business in Slovakia are⁵⁶⁵ : trade licence (Trade Licensing Act §1-81), public business company (Commercial Code §76-92), limited partnership (Commercial Code §93-104), Limited Company (Commercial Code §105-153), joint stock company (Commercial Code §154-220), association (Commercial Code §221-260).

⁵⁶³ On line: <http://www.ulclegal.com/sk/bulletin-pro-bono/2011/11/3135-novela-zakona-o-podporecestovneho-ruchu>.

⁵⁶⁴ On line: <http://www.123podnikanie.sk/legislativa/zakony/>

⁵⁶⁵ Online: <http://www.podnikajte.sk/start-podnikania/c/42/category/pravne-formy/article/prave-formy-podnikania.xhtml>

The Ministry of Economy launched a scheme to promote the industrial cluster organisations (*de minimis aid scheme*) - Scheme DM - 3/2013, published in the Commercial Bulletin No 177/2013 on 13th of September 2013.

The *de minimis aid scheme* is in the form of subsidies from the state budget to finance projects aimed at supporting the development of professional associations of legal persons under §20f - §20i of Act No 40/1964. The aid is intended to enhance the transfer of increation, expert activities, presentations of industrial cluster organisations and their integration into international projects and networks.

The legal basis for the provision of assistance under this scheme consists of⁵⁶⁶:

- Commission Regulation No 1998/2006;
- Law 231/1999 on the State aid;
- Law 523/2004 on budgetary rules and amending certain laws;
- Law 71/2013 on the granting of subsidies by the Ministry of Economy of the Slovak Republic;
- Law 431/2002 about Accounting.

The aim of this aid is to promote the competitiveness of the industrial cluster membership by streamlining their mutual cooperation as well as by strengthening their international position. The donor of this aid is the Ministry of Economy of the Slovak Republic. The executive body is the Slovak Innovation and Energy Agency.

The recipients are industrial clusters set-up as an association of legal persons representing: interconnected companies (business entities), affiliated institutions and organisations particularly in the fields of education and science (colleges, universities, Slovak Academy of Sciences, scientific and research institutions) and government bodies.

LPS and industrial clusters must satisfy the following conditions:

- to be registered in the register of interested associations of legal entities maintained by the district office of the region;
- to be registered in the register of interested associations of legal persons for at least 2 years;
- the activities/outputs are oriented towards the industry.

The subsidy is provided as a single advance payment of 60% of the total approved amount of the subsidy, which is paid to the account of the recipient no later than 10 working days from the date of entry into force of the Treaty about the subsidy.

⁵⁶⁶ Online: <http://www.economy.gov.sk/>

The rest of the grant will be paid to the beneficiary on the basis of billing costs incurred after completion of the project and the subsequent administrative control.

The total amount of the aid granted to the beneficiary does not exceed 200 000 EUR, including assistance received from other providers, or other *de minimis aid* over a period of three fiscal years after the submission of the application. The aid is granted for a period not longer than one financial year, which means it can be used in accordance with §8 of Act No 523/2004. The maximum aid intensity is 60% of the total eligible costs of the project activities implemented under this scheme. The difference between the total expenditure of the project and the amount of the subsidy is financed from recipient's own resources.

3.13. Political conditions for the functioning of LPS in Slovakia

3.13.1. The role of the state

National government has always played an important role in local and regional economic development. The central influence stems from legislation, policies or programmes. The substance of national policies ranges from support through infrastructure building to more complicated programmes that provide targeted incentives for investors in specific industries and regions. In the present study we briefly discuss the current state of the support for small and medium-sized enterprise (SME) and the cluster development policies.

SMEs support:

As of the early '90s, SME support has been established as a priority at all levels of the Slovak governance. It can be said, that the existing system is not very transparent, and includes many actors dealing with the question of the SMEs support. Moreover, it is characterised by very complicated relations. The main focus is on the central state bodies whose tasks foresee policy creation, as well as acquisition of resources. Particular attention is paid to specialised agencies, banks, funds, interests, professional and corporative associations through which policies are implemented⁵⁶⁷.

The main bodies responsible for the implementation of the SME support in Slovakia are the Ministry of Economy and the National Agency for Development of Small and Medium Enterprises (NADSME)

The NADSME was established in 1993 by a common initiative of the EU and the government of the Slovak Republic with the aim to improve the competitiveness of the SME sector within the single EU market and the markets of third countries. The agency prepares proposals for state policies and strategies that are important

⁵⁶⁷ <http://www.nadsme.sk/sk/content/state-support-policy-sme>

for SMEs, participates in the set-up of loan and guarantee schemes, develops support programmes and financial contributions schemes for SMEs, etc. For example, the Risk Capital programme of NADSME helps to invest into developing businesses.

The state-owned financial institution The Slovak Guarantee Development Bank is focused on supporting the development and stabilisation of the business, particularly in the form of providing loans and bank guarantees for loans.

On central government policy level, considerable emphasis was placed on measures for the business environment improvement. To show what the government does to promote SMEs, we include some examples of central government policies responding to the situation in the SME sector caused by the economic crisis that affected the Slovak businesses in the period 2009 and 2010:

- the sharp decline in the total number of employees in microenterprises in 2009 related to the economic crisis was followed by a strong increase in 2010, partly as a consequence of streamlined and simplified administrative steps leading to the creation of start-ups and their operations (registration, standard documentation, lower fees).
- important policy initiatives in 2011 included: setting-up of business incubation centres to support Slovak exporters; cutting the time needed to obtain business licences, and striving to improve the credit flow to the real economy.
- a micro programme has been implemented to increase the survival rate of small entrepreneurs and start-ups, as a condition for maintaining existing employment and enabling creation of new jobs. In addition, the Ministry of Economy adopted in 2012 a state aid scheme to support business activities in tourism, linked to integrated year-round tourism products.
- in January 2013, the Ministry of Economy adopted a State aid scheme to support the introduction of innovative and advanced technologies in industry and services.

Cluster development:

Despite the recommendations of different international agencies, the central government in Slovakia did not use the cluster approach in policy analyses or in policy development. Some parallels to the cluster approach can be found in the policies pertaining to the Slovak automotive industry and to industrial parks, although these developments seem to be driven mainly by foreign direct investment (FDI) and employment policy concerns. Due to the more developed infrastructure (highways, motorways), proximity of Trans-European Transport Networks and

destination markets, several foreign investors invested in the western part of Slovakia. Žilina, Trnava and Bratislava regions hosted automotive clusters established around KIA Motors, PSA Peugeot, or Volkswagen. Trnava and Nitra regions are known for their electro-technical clusters formed around Samsung⁵⁶⁸ (SARIO, 2012).

Although over the past decades the industrial clusters have gained wide acknowledgment in the academic circles in Slovakia, no support mechanisms (financial tools, supporting programmes, legislation, etc.) for clusters development were available at national level until several years ago. Clustering processes have emerged as bottom-up initiatives with support from regional authorities and/or municipalities. Clusters are usually financed from membership fees and international programmes. *Consequently, only few* clusters were officially established.

Along with the need to strengthen competitiveness and the innovation system, state institutions have begun to understand the role that they can play in developing cluster system advantages, which are gained as a result of business integration in local production systems.

Currently, the cluster development in Slovakia is supported by: the “Innovative strategy for the period 2007 – 2013”; different regional innovative strategies and other initiatives and policies that define the clusters as an important tool for sustainable development, able to increase the regional development and the innovative potential of small and medium enterprises. Clusters have been to some extent supported by EU funds within the operational programme Competitiveness and Economic Growth.

The innovation policy of the Slovak Republic for the period 2011-2013 adopted a new measure to support the innovative industrial cluster organisations. The main bodies responsible for implementing this measure are the Ministry of Economy and the Slovak Innovation and Energy Agency (SIEA). A programme for clusters’ support has been implemented by the SEIA. It aims to connect the businesses with scientific and research institutes and to facilitate the subsequent development of new manufacturing processes and materials. The implementation includes financial support from the state budget.

3.13.2. The role of the regional/local government

Decentralisation has provided local/regional governments with more flexible forms of public governance that can be used in undertaking economic development activities using their own resources. The return of competences to local and regional governments has given to local officials much more authority to deal

⁵⁶⁸ <http://www.sario.sk/?regional-analysis>

with local problems. A greater responsibility has been placed on local governments in promoting economic development activities. Gradually, it has been accepted that the economic development initiatives are an important component of the local public policy.

However, a given authority can only take administrative and political responsibility for carrying out public functions if it has the necessary financial resources. Access to resources and sufficient fiscal autonomy determine how far local/regional authority can play its part in economic development activities. Financing of local/regional governments is a crucial factor in its economic development policies

Local economic development encompasses many local government functions, including planning, infrastructure provision, real estate development and finance. Subsequently, local/regional governments use a variety of tools in their local economic development policies. Given the current situation, the principal tools appear to be:

1. strategic planning;
2. financial tools;
3. property-related tools;
4. infrastructure development.

Support for local production systems at regional and local levels is provided through planning and policy development. Local/regional governments tend to adopt the strategic planning as an alternative to manage the devolved policy areas including the economic development policies. The link between the economic development policy implementation and the strategic planning appears to be significant. The emphasis on regional planning generated a wave of strategic development plans both at municipal and regional level. The survey has indicated that most of the local governments prepared a development strategy, which is a critical component of the municipality planning process.

The development plans are based on a territorial approach to development. The method of developing SWOT analysis to outline vision, goals and objectives, identify strategies and actions for socio-economic development programmes has been used by most of the local governments. The effective strategic planning requires a sound analysis of an area's strengths, weaknesses, opportunities, and threats based on the careful interpretation of relevant data, both quantitative and qualitative. Unfortunately, one of the most important obstacles constitutes the lack of reliable planning information at local level, especially socio-economic profile data. Dynamics and trends are either unavailable or invalid, or outdated. As a result, many local governments focus their efforts on data collection.

Each region has its own Regional Innovation Strategy (RIS). Priorities of the RIS refer to: developing a framework supportive to innovations, supporting technology transfers, supporting innovation infrastructure, support to networking and clusters, supporting innovative companies, applied research and international cooperation in R&D, creating financial infrastructure for innovations, establishment of regional innovation centres (RICs), support for technology centres, incubators and parks, establishment of clusters in selected industries, etc.⁵⁶⁹

Property-related policies:

Many local governments are significant property owners. Besides the acquisition of new property, at the beginning of transcreation period they were involved in the transfer of the property of the communal enterprises located on their territory, and in the restitution of the historical communal property. In addition they participated in the privatisation processes. The legislation provides local governments with autonomy in using their property for local economic development activities⁵⁷⁰.

Findings from research show that property related tools are most frequently used to promote local business. However, the extent to which the property can be used to promote local businesses clearly depends on the amount of property owned.

Different activities are related to the development of land and/or property. These include mainly:

- land development such as land acquisition and consolidation to create large sites;
- land support activities such as infrastructure development;
- industrial parks.

Despite the often highlighted financial insufficiency, municipalities invest in land acquisition with the intention to sell it to businesses/investors. Many municipalities invest in industrial parks and other infrastructure in the hope of luring companies to their community.

It should be noted that specific policy measures are managed by central government agencies, but implemented by local authorities (e.g. industrial and technology parks, business and innovation incubators). Large municipalities are obviously much more engaged in economic development as they have greater professional

⁵⁶⁹ Baláž, V. 2010. Regional Innovation Systems in the Slovak NUTS II Regions. *Prognostické práce*, 2, 2010, No 2

⁵⁷⁰ Certain limits in exploiting property are related especially to property transferred to local self-governances within processes of decentralisation. Facilities such as schools, hospitals must remain to serve original purpose, or change of their function must be negotiated with relevant central state institution.

capability, as well as greater capacity for financial and non-financial interventions. In contrast, several small municipalities lack not just the financial, but also the technical and professional resources to carry out any specific activity. The other fundamental fiscal problem of the small municipalities is related to the availability of funds for investments in basic infrastructure at an acceptable level.

A new agenda emerging in regional policies is related to clusters. Specific actions are taken by regional governments to support the creation and operation of regional clusters. Several regional governments and local authorities signed agreements for institutional support to clusters operating in manufacturing, electronics and ICT industries.

3.14. The role of different stakeholders in the creation and functioning of LPS in Slovakia as social and institutional conditions

The creation and functioning of local production system is influenced by many factors and circumstances, like the purpose of their creation, the type of the LPS and also the stakeholders involved in the local production system. The concept of stakeholders is defined in the relationship marketing, which is the new line of marketing with big potential for exploitation not only in the private commercial sphere but also in the public sphere, including the level of local and regional self-governances. The relationship marketing topic is defined in foreign literature (Box, 1999; Wright, 2001; Kotler, Andersen, 1991; Walsch, 1991; Rees, 2000, Vaňová, Petrovičová, 2008, 2009, etc.). It is aimed mainly at citizens as the most important stakeholders. The need of implementation of a new marketing approach results from changes in society, integration of marketing functions with attention to development of activities aimed to obtain and especially sustain the customer as a partner. In local self-governances, the relationship marketing would find its place in planning and in the realisation of territorial development. Through this approach is possible to simplify “the needs of different target groups and stakeholders, coordination, creating conditions for effective implementation of social and economic functions and activities within the local government under collective targets”,⁵⁷¹.

The basic elements of the relationship marketing are stakeholders, interactions, relationships and networks. To the group of stakeholders in local self-governance belong individuals, groups, institutions, organisations and other participants in the relationships that are presented in local government or around, and that create or build a partnership with local government. In theory, there are at least three approaches to stakeholders' identification that come from the marketing definition.

⁵⁷¹ Vaňová, A. 2006. Strategic marketing planning of territorial development, p. 11, ISBN 80-8083-301-X.

The common feature of all these approaches is the dyadic relationship, which means relationship among two subjects. These approaches differ by the number of subjects involved in the cooperation.

In the relationship marketing, subjects of relationship are defined on the basis of “six market models”⁵⁷². As parties involved, called stakeholders, we will understand especially authorities of local self-governance and citizens in a wide sense. If we come out from the original conception of goods ownership in territory, the owner of the public goods is the public administration. From the relationship marketing point of view, public administration stakeholders will be: representatives of local self-governance and state administration: elected members (mayor, chief magistrate and deputies), administrative staff from bodies of self-governance and state administration. Representatives of private sector are particularly inhabitants living in the area, entrepreneurs, investors, non-profit and non-government organisations, civil formal and informal initiatives, financial settlements, churches, academic institutions, research units etc. The quality of the partnership should also be influenced by the political parties through their representatives in local self-governance and state administration. All of these subjects influence the development of the territories and are influenced by the territorial development. So, we will regard them as stakeholders that can enter in partnership and cooperate⁵⁷³ (Vaňová, Borseková, Foret, 2010, p. 77). These stakeholders we consider to be crucial for the establishment and functioning of a local production system. Stakeholders can act as a founder or a member of LPS, or they can act as a customer.

Municipal authorities govern the territory as a unit and try to coordinate the activities in the territory effectively and to use the territorial resources with the aim to ensure its sustainable development and prosperity. Local or regional self-governance can act in the role of institution which supports the creation and functioning of local production systems on its territory. The territory development is influenced by the owners of private goods as well – personalities (several of them private), non-governmental and non-profit companies and organisations. The municipality is responsible to handle the territory in general. As to the other subjects, they influence the development of the territory only partially as they follow their own, individual goals⁵⁷⁴ (Vaňová, 2006, p. 43 - 45).

⁵⁷² Payne, A., Ballantyne, D., Christopher, M. 2005. A stakeholder approach to relationship marketing strategy: The development and use of the “six markets” model, In: *European Journal of Marketing*, 39, 7/8, ProQuest European Business, p. 855-871

⁵⁷³ Vaňová, A., Borseková, K., Foret, M. 2010. Importance of partnership and cooperation for territorial development. In *Theoretical and Applied Economics*, Vol. 17. No: 10. ISSN 1841-8678, s. 73-78

⁵⁷⁴ Vaňová, A. 2006. Strategic marketing planning of territorial development, p. 43-45, ISBN 80-8083-301-X

All types of stakeholders can be the founders or members of the local production system. The needs of each type can often be different, what could be the source of problems and barriers to the territorial development. Sometimes individual interests could be in conflict with the interests of the territory as a unit. The challenge for the local government is to overcome these difficulties through consensus. One possible approach is the creation of partnerships at local level. We can say the same about the local production systems – their creation and functioning have to be consistent with the needs of the most important stakeholders, as well as in accordance with main aims, vision, philosophy and mission of the territory where the LPS is functioning. Coordination and harmonization of relations and interests of all relevant stakeholders are probably the most challenging issues which are usually on the shoulders of the local self-governance. Coordination of relations among stakeholders is of course not an easy task and sometimes different problems could occur. From our point of view, this is usually caused by the lack of cooperation among local self-governance and other relevant stakeholders, or by the lack of cooperation among the stakeholders themselves. Our studies show that the most frequent reasons are: lack of professionals and ideologues on positions, which take decisions on the activities in the territory; dependence on state and EU help; lack of abilities how to use strategic marketing planning; insufficient participation and involvement of important subjects in the territorial development, which is often the result of insufficient quality of relationships and communication between territorial representatives and important subjects (big entrepreneurs, associations of legal and natural persons, citizens) etc.⁵⁷⁵

In LPS establishment and functioning an important role is played by the quality of the relations among local self-governance and stakeholders. For the evaluation of these relations we used the results of the international project “Relations marketing in micro and small enterprises and local self-governances” where following stakeholders were verified in practice: citizens, partner’s municipalities, businesses, other government organisations, financial institutions, non-profit organisations, government offices, labour offices, political parties, local government employees, media, universities and research centres and other entities⁵⁷⁶.

We also used data from primary research carried out by 100 local self-governances in the Slovak Republic, which were chosen by quota sampling. The aim is to evaluate different aspects of the relations among stakeholders and local self-governances. The quotas used for the composition of the sample were related

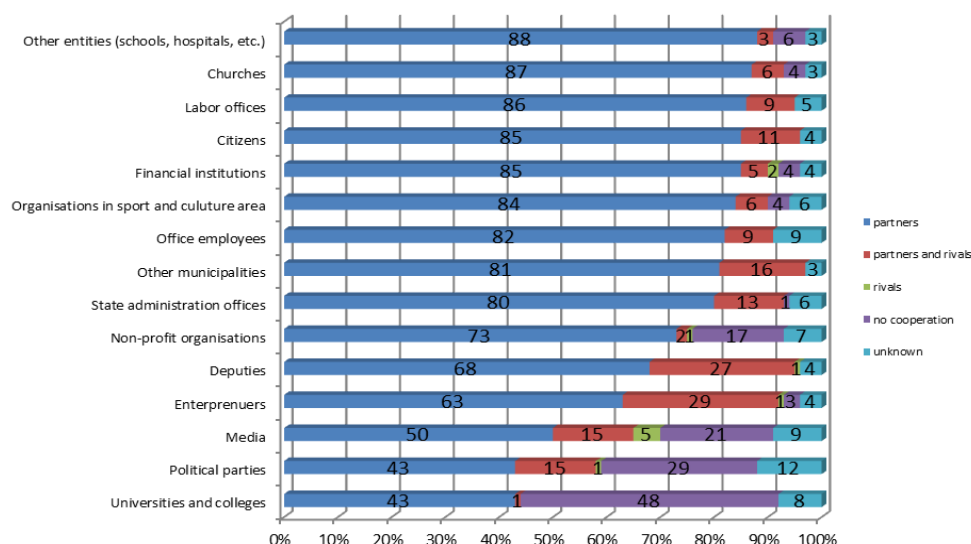
⁵⁷⁵ Vaňová, A. 2006. Strategic marketing planning of territorial development, p. 17, ISBN 80-8083-301-X.

⁵⁷⁶ Lukášová, R., Bajdak, A. 2009. Relationship marketing in micro and small enterprises and local authorities – international comparison p. 185, ISBN 978-83-7246-443-9.

to the size and the region, where the respondents were located. The research was conducted through a questionnaire survey with representatives of local self-governances in the Slovak Republic. The selected respondents were: heads of municipal offices (7%), mayors (66%) and deputies of mayors (18%). 9% of the respondents didn't specify their position.

In Fig. 3.4. we can see, that according to the answers of the respondents, a local self-governance has partner relations with the studied stakeholders, except the relationships with colleges, universities and political parties. Colleges and universities are considered as partners by 43% of respondents, but 48% of local self-governances do not cooperate with them.

Figure 3.4. Stakeholders in local governments in the Slovak Republic



Source: Petříková, 2011, p. 60

Partnership relations are dominant in relation to schools, hospitals and others (88%), followed by churches (87%), labour offices (86%) and citizens and financial institutions (85%). Self-governances consider stakeholders as rivals not very often (media - 5%, financial institutions - 2%, entrepreneurs, other subjects, non-government organisations, state administration offices, labour offices, deputies and political parties- 1%). Local self-governances mostly do not cooperate with colleges and universities (48%), political parties (29%) and media (21%).

According to the results from the research local self-governances considered as partners:

- subjects, with which they are obliged to build relations by law (citizens, public administration offices, labour offices, employees, deputies);
- entities with which they have different relations (founding, control, management or property relations) - contributory organisations, non-government organisations, organisation in sport and culture area;
- subjects with which they want to develop relations for securing the self-governance duties and for the development of the locality (entrepreneurs, other municipalities, financial institutions etc.).

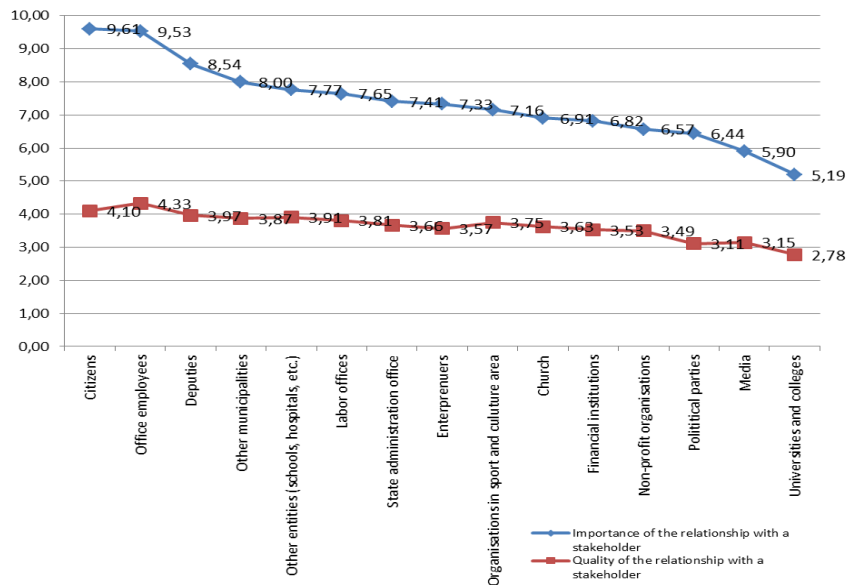
In particular, the third group of collaborating subjects can be seen as potential stakeholders who are creating the local production systems.

In Fig. 3.5 the importance and quality of the relations among local self-governance and stakeholders can be seen. These indicators are important because they show the real situation related to the cooperation in the Slovak Republic. There is an assumption that qualitative cooperation will lead to the development of the locality and will also create subjects that will support it, for example local production systems. The importance indicates the desired level of relations and the quality shows the real level of relations on the scale 1 to 10 (1 means least important, or least qualitative relations and 10 means most important, respectively highest quality of relations). On Fig. 3.5. we can see that the order of importance of relations with stakeholders in local self-governances is follows: citizens, local government employees, deputies, other subjects - hospitals, schools, employment offices, government offices, businesses, organisations in sport and culture area; churches; financial institutions, non-profit organisations in the social sector, political parties, media, colleges and universities.

As we can see the relations and their quality and importance are not well developed for the creation and functioning of LPS. Local self-governances have the best relations with citizens, employees of local self-governance and deputies. These relations are regulated by law and generally it is the duty of the local self-governance to cooperate with these stakeholders.

According to the results from the research we can see that relations with entrepreneurs are not sufficiently developed, and we can say the same about the importance and the quality of this relation for the self-governance. This we consider as a negative fact in Slovakia, because good relations mean well developed cooperation with entrepreneurs that have the potential to boost local development, create new jobs, employ local people, increase production and competitiveness. Entrepreneurs are also initiators or creators of local production systems; especially production orientated ones.

Figure 3.5. Importance and quality of the relationship among stakeholders and local self-governances in Slovakia



Source: Petriková, 2010, p.63

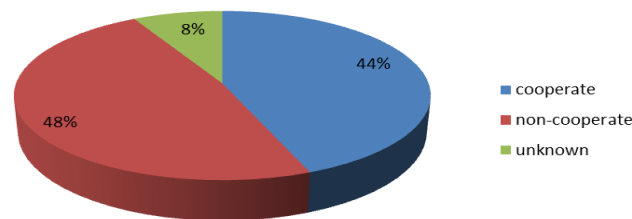
The worst level of cooperation is among the local self-governances and colleges and universities. Universities and colleges can act as catalyst for the creative economy and the creative-orientated LPS. They can attract new investors and are a source of innovation and new creative ideas. The universities, as key actors in the creative LPS and the creative economy, are studied also by Florida, Gates, Knudsen, Stolarick in (*Universities and creative economy*)⁵⁷⁷. The authors agree that the key role of the universities in the economy lies in their ability to transfer research and its results to industry, to generate inventions, innovations and patents as well as to make use of technology in favour of launching new businesses. As we can see in Fig. 3.5., the cooperation with universities is not sufficiently developed. Only 44% of the local self-governances cooperate with colleges and universities. 48% of the local self-governances do not cooperate with colleges and universities, and 8% did not mention the character of their relation.

We assume that the low level of cooperation is caused mainly by the local self-governances and their lack of understanding and appreciation of the advantages and benefits that cooperation could bring to them. In addition, local self-governances do not perceive the partnership with colleges and universities as an

⁵⁷⁷ Florida, R., Gates, G., Knudsen, B., Stolarick, K. 2006. The University and the creative economy. 51 p. Available at: <http://www.creativeclass.com>, Accessed 2nd June 2013

important step towards creating the conditions for creative LPS establishment and their future functioning. The importance of this partnership is under-estimated in terms of creative economy and industries development which could boost the overall territorial development. Last, but not least, one should mention the missing legislative framework able to support such a partnership (as, for example, in the Czech Republic).

Figure 3.5. Cooperation among local self-governances and colleges and universities



Source: Borseková, Petriková, 2010, p. 10

Concluding remarks

According to the results of the study we see a huge gap in the area of cooperation among stakeholders and local self-governances in Slovakia. The lack of cooperation among stakeholders in the territory influences negatively LPS establishment and functioning. In the case of Slovakia, there is a lack of cooperation among local self-governances and universities, which are the catalyst of creative ideas, innovations and important parts of the creative economy. This is one of the reasons that in Slovakia any real creative local production system is not established yet. The development of the cooperation among key stakeholders and local and regional self-governances would support the process of the establishment of new LPS and ease the functioning of the existing ones.

3.15. Environmental conditions for the functioning of LPS in Slovakia

In general, the environmental conditions should help to ensure harmony between man and nature. In the field of the environmental conditions for LPS functioning in Slovakia, the territorial system of environmental stability plays an important role.

The plan for system environmental stability serves as a basis for land ownership adaptations, preparation of zoning documentation, forestry plans, hydrological plans and other documents for landscape protection and recovery.

A territorial system of environmental stability is an integrated structure of interconnected ecosystems, ensuring the diversity of life conditions and forms in the landscape. The system consists of bio-centres, bio-corridors, and interactive ele-

ments of national, regional or local importance⁵⁷⁸. In Slovakia the obligation to develop and protect the territorial systems of environmental stability is laid down in a number of legal regulations and Slovak Government's resolutions, however it is not defined in a separate act. It is based on the Concept of the territorial system of environmental stability. From a legislative perspective, territorial systems of environmental stability are covered by Act No. 543/2002 Coll. on nature and land protection, as amended. This issue is also generally represented in other acts related to the environment, and especially to the zoning.

It is also important to mention the Environmental Impact Assessment (EIA) processes. The EIA is one of the main instruments of the international environmental policy for implementation of sustainable development. The purpose of the assessment is primarily to ensure a high level of environmental protection⁵⁷⁹. The EIA is also one of the initial steps preceding the implementation of a planned activity. The Act on the environmental impact assessment⁵⁸⁰ lays down that it is the obligation of the investor of a project to draw up the following:

- announcement about planned activity changes;
- scoping;
- assessment report.

These are extensive documents with numerous attachments. However, their extent may differ depending on the type and size of the planned operation (or of the planned change). The outcome of the EIA process is either a Decision of the Regional Environmental Office or a Final Report issued by the Slovak Ministry of Environment. The report comprises conditions and obligations to be met by the operator at the next levels of the activity implementation (investment implementation).

One of the key elements of the assessment processes of a project to be implemented in a given territory, regardless of whether it is an existing industrial area, local production system or undeveloped territory, is the environmental audit. The environmental audit assesses the activities of a company from the perspective of the environment protection, by comparing the organisation's activities with the environmental legislation in force in the Slovak Republic and in the European Union and by assessing the adherence to the decisions of state administration authorities in the field of environment protection. The environmental audits cover in particular the following areas: environment management (system and organisation, loca-

⁵⁷⁸ Online: http://www.sazp.sk/slovak/periodika/sprava/psreng/nature/nature_b_3.html

⁵⁷⁹ Online: <http://www.minzp.sk/postupy-ziadosti/posudzovanie-vplyvov-zivotne-prostredie-eia/>

⁵⁸⁰ Related legal regulations: Act No. 24/2006 Coll. on environmental impact assessment and on the amendment of certain acts, as amended, Regulation of the Slovak Ministry of Environment No. 113/2006 Coll. laying down the details concerning professional qualification for the purpose of environmental impact assessment.

tion), air protection, water management, handling and disposal of hazardous substances, groundwater and soil (drilling, sampling and sample analysis), waste management, working environment, emergency plans, documentation concerning environmental protection and actual situation in the workplace. The results include, in addition to the identification of key environmental problems, proposals for activities to conform to the legislative regulations or recommendations for overall improvement of the environmental behaviour of the company.

Areas such as air protection, water management, handling and disposal of hazardous substances, groundwater and soil, waste management, working environment (noise, vibrations, chemical, physical and biological factors of working environment – exposure and admissible concentrations, cleanliness of working areas) may relate to LPS functioning. All of these areas are regulated by the legislation of the Slovak Republic (relevant acts). For example each functioning LPS produces waste. Waste management is regulated mainly by the Act on Waste No 223/2001 Coll., as amended. Its executive regulations lay down the rights and obligations of the organisations producing and holding waste. A separate and relatively extensive area of waste management, concerning mainly packages is regulated by Act No 529/2002 Coll. on packages and waste from packages, as amended, and its executive regulations.

The rapid development in the second half of the 20th century meant that many countries faced environmental problems related to land usage and environment protection. Thee interaction between the environment and the activities of people, organisations, companies or LPS requests to implement the environmental principles into practice. To prevent negative environmental impacts, it is important that LPS do not breach the legislation in the field of nature protection. Implementation of environmental principles in spatial planning processes is needed to secure the sustainable use of natural resources. In this sub-chapter chosen legislative acts and regulations, which form the environmental conditions of LPS functioning in Slovakia have been presented.

3.16. Legal aspects of LPS financial basis

In the Russian Federation local production systems are often considered in the context of municipalities. The real LPS budget balance is affected by many factors, but among the main are:

- economically justified distribution of incomes between the various levels of government;
- the degree of socio-economic development of the region;
- independence of budget revenues and expenditures forming;

- differentiation of the structure of income by type, source and time of receipt, (by industry sector);
- stability of the revenue base;
- the effectiveness of budget spending;
- the quality of the legal framework governing the procedures and mechanisms to ensure the balance.

The quality of the legal basis creates the conditions for the budget balance. The legal basis defines the scope of the rights and powers that the law renders to the local production systems. And if, under the existing legislation, the subjects of the Russian Federation and the municipalities do not have real authority (for example in terms of independence of the budgets), no initiative and responsibility could be achieved.

Legislation in the field of intergovernmental relations' regulation in the Russian Federation is evolving, but the problem of the financial support for local government (as the most common type of local production systems) does not find adequate solutions, especially in terms of the tax-based income of the budgets. Adopted on October 6, 2003, the Federal Law 131-FZ "On General Principles of Local Self-governance in the Russian Federation" (Federal Law number 131) has defined a new field of municipal development. Among the positive aspects of the new law are the clear separation of powers of different levels of government, and the proposed solutions to the problem of unfunded mandates imposed on local governments. In addition, the Act contains a provision (Section 3, Article 18), according to which the determination of costs incurred at the expense of local budgets, is the prerogative of local authorities. It is important to note that the Act (Article 19) links local governments' order of investment with certain state powers (together with the payment of subventions for their performance), and also contains a list of the property necessary for the exercise of powers.

Moreover, the Act prescribes the direction for the strengthening the economic basis of local self-governance in terms of guarantees to the municipalities for the creation of local budgets and municipal instruments of social and economic development. The Act accompanies the autonomy in terms of: shaping the programmes and plans for socio-economic development and local budgets; municipal borrowing and inter-municipal cooperation, municipalities' own revenue base in the form of local taxes and the share of regulated taxes.

However, the law continues to ignore many of the pressing problems of local self-governance in Russia, that interferes the development of local production systems, including the fiscal autonomy of local authorities, for example: imperfect mechanism of financial assistance to local budgets; under-funding of expenses transferred to the local level by the federal and regional legislation; incomplete separa-

tion of ownership (municipal and regional); unreasoned process of municipal bankruptcy. Here are brief comments on these issues.

Fundamentally important to the functioning of the local production systems is the order of creation of the revenue of the local budgets. It determines the creation of a stable financial base for the local authorities of their powers. The law introduced new conditions for the creation of the revenue and expenditure side of local budgets, as well as new mechanisms complicating the intergovernmental relations. If, before the introduction of the new law, local budget revenues were divided on their own and nonpermanent, the new classification provides their own income and subventions.

The structure of the LPS own revenues, as local budgets, has undergone significant changes after the adoption of the Federal Law number 131. These now include not only reserved for the local budgets on an ongoing basis revenues from local taxes and fees, contributions from federal taxes and fees, their own non-tax revenues, but also the income which is predetermined by the decisions of the government of the subject of Federation - the means from financial support and contributions from regional taxes and fees.

The adoption of such a structure means that the assets transferred to the budget, on a free and irrevocable basis, become the property of the territorial units of the corresponding level. However, the new principles of local budgets' forming do not solve the problem related to the dependence of the local budgets from those of a higher level. Also these principles distort the situation of dependence on subsidies.

The current approach provides for local self-governance set-up on the basis of the state powers granted. But if the granting is not combined with sufficient funds to carry out these powers, it defeats the purpose and principles of local self-governance. Of course, the empowerment from a higher level is possible and even necessary, but in any case not as an obligation for the local government established by the constitution. Such an authority should be established on a parity basis. The legitimation of the penalties, introduced by the new law, for the improper exercise of the State powers by local authorities is doubtful. For such cases, the law foresees the dissolution of the representative body or the removal of the head of the municipality, regardless of how they solved the problems of local importance. Thus, the exercise of the State powers by bodies of local self-governance, in fact, is put above the performance of those functions for which they were created.

Another critical issue for the functioning of local production systems is related to the system of budget equalization schemes for urban and rural settlements, as well as for municipal and urban districts. The provision of the Act, is too cumber-

some and complex, which may increase the "lack of transparency" of local budgets and create additional opportunities for the misuse of budget funds. The equalization of the fiscal capacity of the settlements will be carried out through the budget of the Russian Federation Regional Fund for financial support of settlements. Grants from the Fund are distributed among the settlements' budgets on a per capita basis. In addition to this fund they provide for the establishment of district funds for financial support to settlements. Grants from these funds should be provided to the settlements with estimated fiscal capacity below the level set as a criterion for budget equalization schemes for settlements. In this case, the estimated settlements' budget provision is determined by the ratio of tax revenue per capita. The equalization of the fiscal capacity of municipalities (urban districts) is based on a similar mechanism through the provision of subsidies from the regional fund for financial support of municipal districts (city districts). It would be better to use a two-step mechanism for financial aid to local budgets, in which the regions equalize of the municipalities and city districts and municipal districts - the fiscal capacity of urban and rural settlements.

Another problem is related to the redistribution of municipal and regional property arising as a result of the establishment of municipalities of various types. First of all, it will affect the land and real estate. In addition, the current territorial ownership structure relying heavily on the existing territorial division and hierarchy of settlements, will also be seriously broken, which can lead to political conflicts.

It should be added that according to the new Act, subjects of the Federation have the right to set boundaries of municipalities as local production systems in accordance with their own ideas about the economic feasibility of the development of the territory. As a result, a number of cities that previously had the status of regional importance in the creation of a new territorial organisation of local self-governance were not granted the status of acity. Thus, they were deprived from authority and, consequently, from the possibility to contribute to their self-sustaining economic development and investment attraction. The infringement of the interests of these cities leads to serious conflicts in the region, which was to be expected, since their downgrading to urban settlements made them equal by authority to the rural ones. Among these cities are more than 100 cities with the status of cities of regional importance, including Priorsersk, Gatchina, Shelehov, Angarsk, etc.

Within three years after the adoption of the Federal Law of October 6, 2003 № 131-FZ numerous amendments have been made⁵⁸¹. The amendments adopted in September 2005 by the Federal Law number 131, established a transitional period

⁵⁸¹ From 2004 to 2006, 25 federal laws were amended in the Federal Law of October 6, 2003 № 131-FZ.

until 1 January 2009. However, the provisions of the Law, to the extent of not relating to the powers and budgets of the newly established settlements, should have been applied on 1 January 2006. In the newly created local production systems at settlements' level, the order of their solutions to local issues during the transition period should be determined annually by the laws of the subjects of the Federation. This means that local issues of newly created urban and rural settlements can be partially or even fully transferred to municipal districts, thus the enrollment of the revenue sources allocated to the settlements (including local taxes - land and personal property tax) in the district budget is allowed. In this case, the income and the expenses of the settlement may be included in the budget of the municipal area, i.e. settlement's funding can be carried out under the estimate.

Federal Law № 95-FZ of January 1, 2005, which amends the Tax Code, establishes the types of taxes and duties to the Russian Federation, as well as a special tax regimes.

The Law sets 10 types of federal taxes: value added tax, excises, tax on personal income, the unified social tax, corporate income tax, the tax on mineral extraction, inheritance tax or gift tax, water tax, charges for the use of fauna and for the use of aquatic biological resources, and the state fee. Regional taxes are property tax and tax on gambling and motor vehicle tax. Local taxes include land tax and a tax on personal property.

Thus, in the system of taxes and fees in Russia customs' duties and charges, payments for the use of forest resources and payments for negative impact on the environment are no longer required, as they are regulated by special federal laws.

The Law changes the budgetary allocation rate of income tax. Now you need to deposit 6.5% in the federal budget, and 17.5% – in the budgets of subjects of the Russian Federation. Local budgets do not receive any part of income tax. Then, the income tax rate may be reduced for certain categories of taxpayers. In this case, the aforesaid tax rate cannot be lower than 13.5% (previously - not less than 13%).

Special tax regimes are introduced, which include:

1. tax system for agricultural producers (unified agricultural tax);
2. simplified system of taxation;
3. tax system as a single tax on input income for certain activities;
4. taxation system with production-sharing agreements.

Budget expenditures tend to increase. The Law provides for social guarantees for some categories of citizens at regional level (veterans, politically rehabilitated citizens, child allowances). The Law gives funding to specialised secondary schools and colleges for technical education at the level of a subject of the Russian Federation.

The Federal Law № 120-FZ, which came into force on January 1st, 2005, excludes the presence of the 3-level budget system of the Russian Federation. The law provides for the separation of local budgets into two levels (types) – municipalities' budget and settlements' budget.

The Law prohibits the establishment of individual, not relevant to the Tax Code relationships between different government levels in the implementation of the budget process. In addition, the Law establishes common principles and mechanisms to provide transfers to the budgets of other levels of the federal budget, to the budgets of subjects of the Russian Federation and to local budgets. There is a new chapter that regulates the status and functions of the temporary financial administration. The introduction of a temporary financial administration is made for a period of up to 1 year, following a decision of the arbitral tribunal, if the arrears of the subject of the Russian Federation (municipality) exceeds 30% of its income from the corresponding budget. The Law defines the concept and the structure of the debt, and sets the functions and the powers of the temporary financial administration.

It should be noted that the estimated budget provision of a local production system is determined by the ratio of tax revenues per inhabitant. But, in fact, it is rather a tax provision, as the points are based on tax revenue per capita. It would be reasonable to determine the budget provision by all the per capita income of the municipality, except for the gratuitous transfers from other budgets.

The Law establishes the following principles of distinction of budgets' revenue sources:

- assignment to an own income of all revenues, except for subsidies, i.e. financial assistance also;
- transcreation of governing revenues to fixed income;
- rejection of the splitting of the regional and local taxes by federal law;
- establishment of uniform standards for deductions from federal and regional taxes to the budgets of the subjects of Russian Federation (local budgets);
- establishment of the possibility for differentiation of the norms for deductions from the taxes on personal income to local budgets.

The Law refers to local taxes (tax settlement) - the tax on personal property and land tax, which will be fully credited to local governments and to local taxes (municipal areas) - the tax on personal property and land tax levied on inter-settlement areas.

It should be noted that the subject of the Russian Federation itself decides what part it passes in the form of additional tax deductions, and how much in the form of intergovernmental transfers, including subsidies to equalize budget capacity

from regional funds for the financial support to municipalities. This right can be realised by the establishment of uniform standards for the budgets of all types of municipalities (villages and urban districts, municipal districts), or for certain types of them, for example, municipal and urban districts or villages and urban districts.

In accordance with the budget reform, the subjects of the Federation have the right to transfer to LPSS budgets part of any tax to be paid to the regional budget on an ongoing basis (i.e., without a time limit), but this feature is not widely used. Regions give preference to the traditional subsidised forms of budgetary control or replacing standards of tax deductions that are fixed only for one budget year. This approach is quite understandable. The preferred orientation to uniform standard allocations to local governments from the federal and regional taxes to be paid to the budgets of the subject of the Federation does not take into account the significant differentiation in the economic and budget capacity of municipalities, as well as the tax base for the tax passed. As a result of the transfer of revenue sources, the saturation of the local budgets of some areas leads to a glut of other budgets.

It is necessary to mention another important law № 122-FZ, which came into force on January 1st 2005, which is unprecedented both in scope and in number of adjusted legal texts. This law amended 153 Federal Laws, fully or partially cancelled, and another 111 legislative acts, i.e. generally, 264 pieces of legislation have been changed or cancelled. The changes are aimed at the revision of the federal law as it relates to the division of powers between different levels of government and their financial security. In particular, in relation to citizens, whose social support is related to the powers of the federal authorities, the law established a basis for the replacement of the natural benefits (except benefits for housing and communal services) by monthly cash payments.

In the area of social policy the Law defines issues of local importance, such as: benefits for low-income citizens in need of better housing, living quarters; guardianship and trusteeship. All other powers related to social policy and social support can be carried out by local authorities or by the use of subsidies (provided by the relevant public authority), or on its own initiative in the presence of own funds in the cases expressly provided by federal laws and laws of subjects of the Russian Federation.

In addition, the Law defines the powers of the state authorities of the subjects of the Russian Federation: subventions to local budgets for the payment to the citizens of targeted subsidies for housing and communal services, in accordance with the standards established by the laws of the Russian Federation.

In order to adapt all government levels to the new system of inter-governmental relations the Federal Law № 198-FZ of December 27th 2005 (for a transitional period of 2006-2008) greatly expanded the rights of the state authorities of the subjects of the Russian Federation regarding the budgetary control. Thus, the subjects of the Russian Federation have the right to substitute (after consultation with municipalities) the subsidies from regional funds for the financial support of settlements and municipal districts with additional standards of deductions not only of the income tax on individuals, but also of any other federal or regional taxes and fees received by the Regional budget. Law № 198-FZ (for the transitional period of 2006-2008) expanded the capabilities of the subjects of the Russian Federation for the implementation of the mechanism of "negative transfer"⁵⁸².

Further budget legislation changes also affected the concept of municipal reform (Federal Law of 31 December 2005 № 199-FZ). One of these changes relates to the delimitation of local issues and delegated state authority in terms of funding sources that the local government reform plan considers to be sufficiently rigid. Law № 199-FZ, expanded the powers of municipalities, giving them the right to perform on their own initiative not only the state powers transferred to them, but also additional measures for social support and social services for certain categories of citizens, regardless of whether the provisions that establish these rights are specified in federal laws. Thus, the Federal Law № 199 introduces voluntary power, which do not guarantee to the population social benefits, since their implementation depends entirely on the will of the subjects of the Russian Federation and whether they have the financial resources.

Another change made by the Law № 199-FZ, concerns the clear delineation of local issues between the two levels of the local production systems - municipal districts and settlements. Although that provision is preserved in the Law, it has no clarity, because the division of powers between the district and the settlement becomes impossible in most local cases.

The lack of clarity in the division of powers between the different levels of the municipalities creates uncertainty in the delineation of property between them. The inconsistency in the relationships in terms of authority and ownership is also reflected in the fact that the list of objects of property that may belong to municipalities in accordance with Article 50 of Law № 131-FZ, is not extended in accordance with the new issues of local importance, included in the competences of the municipal districts and settlements (Law № 199-FZ).

In general, the changes made by Law № 199-FZ in the concept of municipal reform, do not give an unambiguous interpretation. On the one hand, they are de-

⁵⁸² Karchevskaya S.A. Local government reform: the tax aspect. // The Finance. 2007. № 12. P.7-11.

rived from the needs of the practice, and allow to mitigate those apparent contradictions and inconsistencies, which were risen by the Law № 131-FZ. On the other hand, they are replacing the consistently implemented concept by conceptually not well thought-out steps that can only complicate the reform in the future⁵⁸³.

Adopted in 2007, the new version of the Budget Code (Federal Law № 63-FZ of 26 April 2007) aims at enhancing the efficiency of the financial management at regional and local levels. In the beginning the concept of "public legal creation" was introduced by law. In addition, a number of innovations in the budget process were introduced as well. In particular, the Code provides for the organisation of the budget on the basis of expenditure obligations of the authorities of the subjects of the Russian Federation and municipal entities. At all levels the budgets are to be developed for a period of 3 years. Budgeting is focused on a new methodology for development, adoption and implementation of the budget, which implies a transition to a medium-term budget planning and system of performance budgeting.

One of the characteristics of the new version of the Budget Code is the introduction of new principles of the budget system, changing the names and content of a number of operating principles, as well as the exclusion of some previously declared principles. So, the new ones are principles of budget expenditures justification and unity of funds. The principle of budget funds targeting could not be applied, as the provision that any action leading to an unauthorized targeting of the budget resources is a violation of the budget laws, is not into force. The new version of the Budget Code does not contain the principle of the balanced budgets of the Russian Federation. It seems that this principle is crucial for developing the budgets of all levels, especially local.

Today we have to talk about the weakness of the legal framework governing the procedures and mechanisms of the balanced budget. The Budget Code of the Russian Federation in its present form does not answer a number of questions directly related to the problem of the balanced budgets. As a result, such local production systems as the subjects of the Russian Federation and the municipalities do not currently have those revenue sources that would allow them to dispose of most of the assets of its own budget independently and for a long time. The current situation is, to some extent, related to the vague wording of the principle of division of revenues, expenditures and sources of financing of budget deficits between the budgets of the budgetary system of the Russian Federation (Article 30 of the Budget Code of the Russian Federation). That principle means binding of the revenues to some budgets in accordance with the legislation of the Russian Federation. And there are no criteria according to which the binding of the revenues

⁵⁸³ Sidorova E.N., Tatarkin D.A. The financial potential of increasing the competitiveness of municipalities. // Economics of a region. 2007. №4. P.68-84.

should be made. As a result, the income differentiation between the budgets is decided in favour of the federal level, that has secured all important taxes. Thus, the subjects of the Russian Federation and the municipalities have no real independence. Such an approach does not promote the development of local initiatives, generates financial dependency, and as a result is harmful for the federal interests.

In reality, significant part of the subjects of the Russian Federation are not able to implement the declared in Art. 31 of the Budget Code of the Russian Federation right to balance the budgets independently, because the rate of intergovernmental transfers is very high. The important share (not just absolute, but relative) of subsidies and subventions allocated from the federal budget for these purposes clearly leads to the fact that the declared right in Article 31 "to determine the shape and direction of spending budgets" cannot be fully realised by the subjects of the Russian Federation and the municipal entities. Furthermore, in Article 31 of the Budget Code of the Russian Federation there is no legal guarantee for judicial independence of the regional defence budgets, thus, this principle cannot be fully realised due to the clash of interests of various levels of government.

The principle of budget independence appeared in the '90s of the last century, i.e. at the time of the establishment of the new budgetary system of Russia. At that time, the concept of the budget "own revenues" was included in the scientific and practical turnover. The concept of the "own revenues" has replaced the old division of the revenues into fixed and adjustable. At the same time this concept gradually changed both in terms of content of the very definition and classification of specific types of income and composition of their own.⁵⁸⁴

Over time, the composition of the own revenues has spread to cover not only the sources that are assigned to specific types of budgets in the long-term, but also the revenues to the budget in the order of the fiscal adjustment, changed annually. As a result, today's own revenues include all types of income, other than subventions. In these circumstances, the category of "own revenues" cannot be considered as a tool for independent budgets.

While evaluating the content of Article 47 of the Budget Code of the Russian Federation (own budget revenues), it should be emphasised that it only gives a list of fees that are included in the concept of own budget revenues, but there is no definition of the concept, nor of those classifications, according to which a given income may be included in the own revenues. Thus, the article does not reveal the

⁵⁸⁴ Rodionova V.M. Balanced budgets: a theoretical and legal aspects. // The Finance. 2012. № 4. P.54-60.

economic content of the own revenues. They are only considered from the perspective of the owner.

The new version of the Budget Code provides for expenditure commitments taken at all public authority levels on the basis of the first division of powers between them carried out in 2005. Meanwhile, within the period 2005 - 2007 another division of powers between the public authority levels was carried out, which resulted in significant additional powers entrusted to the regions and local governments. However, the regulations on the distribution of the income levels of the budget system, developed at the beginning of 2007, laid the basis for the budgeting at all levels⁵⁸⁵.

A negative trend in the legal regulation of the budget relations is related to the more strict requirements and restrictions for the municipalities compared with the regions. Thus, the new version of the Budget Code defines additional terms of intergovernmental transfers for highly subsidised and subsidised local production systems – it introduces not two (as for the subjects of the Federation), but three stages of restrictions depending on the share received by the intergovernmental transfers. In addition, the municipalities, whose share of intergovernmental transfers in their own revenues for two of the last three financial years exceeds 10%, have additional restrictions in terms of administrative costs. As to the subjects of the Federation, this share is 20%.⁵⁸⁶

Thus, in summing-up the changes in the inter-budgetary relations one can state that in the regulation of the local production systems there are still a number of problems, among which are:

- persistence of significant disparities in the financial division of powers between the centre, regions and municipalities;
- transposition of excessive burden on settlement municipalities;
- reduction of LPS independence in the spending of budget funds;
- inevitable process of redistribution of property between the regional authorities and the two levels of local government;
- centralisation of the revenue sources in the sub-national budget of the Russian Federation;

⁵⁸⁵ Pronina L.I. Local government in the medium-term financial planning. // The Finance. 2007. № 5. P.16-20.

⁵⁸⁶ Pronina L.I. Local government in the medium-term financial planning. // The Finance. 2007. № 5. P.16-20.

- decrease in the balancing budget capacity of LPS, due to the increased volume of targeted transfers;
- risk related to an unreasonable suspension of local government powers;
- complexity of the mechanism for financial assistance distribution to LPS;
- shortages of qualified personnel needed by the LPS to fulfil their objectives and to conduct appropriate fiscal accountability;
- unjustified increase in the number of and the costs for municipal employees, related to the establishment of the 2-level local government.

3.17. LPS as objects of performance budgeting

LPS expenditure management is an important part of the sub-federal budget policy. It is related to the budget process and to the system of composition, ratification and execution of budget (concerning expenditures). Thus, budgeting improvement is an important instrument for increasing the effectiveness of LPS expenditures on the level of the subjects of the Federation and the municipalities.

In Russia, budget policy improvement is aimed at the establishment of conditions for effective management of state and municipal finances, according to the socio-economic policy of the state. Among the possible measures are:

- focus on the long-term purposes of the socio-economic development of the country and on the expenditure priorities of federal budget (including the possibilities for their defrayal);
- guarantee of the forecast conditions for budgeting at all levels, including federal, regional and local ones;
- transition from one-year to mid-term budget planning, assuming budget expenditure structuring for 3 years;
- development of the monitoring system for socio-economic effectiveness of the budget expenditures with the use of qualitative and quantitative indicators, which can and estimated for budgets of all the levels.

In the world practices the performance budgeting (PB) is widely used for such measures. Performance budgeting is a method of planning, executing and monitoring of the budget, which distributes the resources among goals, purposes and functions of the state, according to the priorities of the state policy and according to the social meaning of the budget execution in terms of direct and final results⁵⁸⁷. PB gives an opportunity to measure expenditures and results, to choose the most effective ways of budget resources spending, to estimate the extent of the

⁵⁸⁷ Lavrov A.M. Budget reform 2001 – 2008: from input management to result management. // The Finance. 2005. - № 9. – P .3-12.

pre-arranged results' achievement and their quality in proper time. Results can be estimated by quantitative or qualitative indices, which should be measurable and comparable. Using the PB principles allows us to construct a result-oriented budget management system taking into account the responsibility for reinforcement and widening the independence of the budget institutions (and budget managers) within the strict medium-term guiding line.

Medium-term performance budgeting is a permanent process. It means that forward-looking plans for the second and the third year of the previous medium-term budget cycle become the basis for the first and the second year plans of the current budget cycle. This approach allows for coordination between the one-year budget plan and the medium-term planning.

The advantages of the performance budgeting model are clarified by following considerations⁵⁸⁸:

1. Separate planning of current and accepted liabilities, which allows us not only to better consider their different characteristics and role in the budget planning, but also to take consistent decisions during the planning period;
2. State provision of social goods and services that people really need;
3. Transition to performance budgeting allows us to consider *sine ira et studio* the current expenditure trends and to break down many expenditures, being carried out only traditionally, without proper socio-economic justification of their necessity;
4. Approval of a maximum budget for budget planning subjects for 3 years. At the same time, decision-making is carried out by taking into account the priorities of the mid-term policy;
5. Strengthening the responsibility of the state ministries for the final results, taking into account specific quality indices;
6. Increase of the decision validity, concerning state expenditures, through increased inaction supply.

The advantages of the budget process based on PB under the mid-term planning are clearly seen from the point of view of the new budget classification, taking into consideration the procedures of budget composition and discussion. One should note that these procedures create conditions for administrative accountability. In particular, these procedures are implemented in the development of 3-year forward-looking financial plans in Russia, thus reflecting the new aspects in the budget process. In 2005 significant changes in the legislation were carried out.

⁵⁸⁸ Lavrov A.M. Budget reform 2001 – 2008: from input management to result management. // The Finance. 2005. - № 9. – P. 3-12); Sergienko J.V., Androsova S.A. Peculiarities of budget process, oriented on region economic development. // Regional Economics: theory and practice. 2009. № 17 (110). P. 46-48.

They resulted in changes in the principles of the structure and the composition of the forward-looking financial plan. Table 3.13. shows these changes.

Table 3.13. Changes in the principles of the forward-looking financial plan

Before 2005	Since 2005
– for 3 years;	– for 3 years;
– needn't ratification;	– is ratified by the federal government;
– weak correlation with the yearly budget;	– strict correlation with the budget (with the same parameters, as year before);
– aspect is not determined;	– 3 stages (main parameters, plan, detailed plan);
– stages of working up are not determined;	– 3 tables;
– current and new liabilities are not marked;	– separate planning of current and new liabilities;
– extended functional classification;	– functional classification is not obligatory;
– without departmental section;	– departmental section is obligatory;
– every year anew.	– (sliding triennial).

Source: Lavrov A.M. (2005) *Budget reform 2001 – 2008: from input management to result management*. // *The Finance*. 2005. - № 9. – P. 3-12).

Apparently, the modifications in the budget composition conditions promote budgeting's better organisation because each forward-looking financial plan is ratified by the Russian Government and the first-year parameters of the 3-year period correspond with the federal budget projects, under further parameters' correction for the second and the third year.

In the Russian literature, most of the researchers consider the performance budgeting as one of the most important parts of the budget reform⁵⁸⁹. Its importance is further strengthened during the current crisis.

Besides all of the above-mentioned opportunities for budget process improvement through performance budgeting, PB includes some restrictions. Some authors⁵⁹⁰ note, that PB cannot cover all the problems of the expenditure management. For example, the quantitative evaluation of the expenditure quality cannot always be connected with results (e. g. work of courts, armed forces, medical and educational organisation, etc). Such results could be fully explained. PB is an attempt for implementation of the quasi-market mechanism to the public sector. In fact, it does not create a market sector, but makes a state organisation work on market-like principles. Russia is not ready to apply PB because problems related to politi-

⁵⁸⁹ Lavrov A.M. Budget reform 2001 – 2008: from input management to result management. // *The Finance*. 2005. - № 9. – P. 3-12; Boukhvald E., Eagoudin A. Implementation of performance budgeting on regional and local level. // *The Federalism*. – 2009. - № 3. – P.93-108).

⁵⁹⁰ Boukhvald E., Eagoudin A. Implementation of performance budgeting on regional and local level. // *The Federalism*. – 2009. - № 3. – P.93-108); Siniavskaya S. Budget PR-machine. // *Strategy and Competitiveness*. 2008. № 5 (29). P.24-25.

cal competition, separation of powers, primacy of law, free mass media, low corruption etc. should be resolved⁵⁹¹.

PB includes many problems and implements mainly easy routine management functions. In Russia, the introduction of PB reflects the interests of the central power (in the case of maximum financial centralisation), thus creating an illusion of good bureaucracy.

In addition, it is necessary to distinguish another more important aspect of the PB model usage. The introduction of PB is a multi-stage process, which has to embrace all levels of the budget system. PB usage at each level has some specific features.

Until now, the principal attention in PB introduction, including methodic elaborations, was on the federal level. One should mention that the PB system as a whole has not yet been implemented abroad. We can only see its fragmentary usage for specific budget expenditures at each level of the budget system. According to the experts, this could be explained with the fact that some types of required results (social effects and/or budget services), which form the PB system, are not determined. In addition, in the context of LPS two aspects of PB introduction are critical.

Firstly, we have to choose how to estimate the results of the budget services: according to the achievement of certain parameters of these services, or according to the socio-economic results obtained. Secondly, the practical usage of the effectiveness parameters directly into the budget planning is problematic. It is generally known, that PB practical implementation requires a distinct revealing of the intermediate results. These results, as a rule, are expressed in absolute parameters. As to the final social results, they are determined in terms of degree of achieving (right up to 100%). In addition, budget prospective results should not be achieved at any costs. The implementation of the PB method requires rationalization, but not minimization of the budget expenditures. Thus, both the elaboration and the use of the system parameters are very important for the estimation of the pre-defined budget results and their quality.

Some authors propose a rational minimization of the budget expenditures without decrease of the budget services' quality and quantity as integral indices of the socio-economic effectiveness of the budgeting in a given fiscal year⁵⁹². Generally speaking, the socio-economic effectiveness of PB execution is seen only as a trend. This trend results from an estimation of the social results. Thus, the socio-

⁵⁹¹ Siniavskaya S. Budget PR-machine. // *Strategy and Competitiveness*. 2008. № 5 (29). P. 24-25.

⁵⁹² Boukhvald E., Eagoudin A. Implementation of performance budgeting on regional and local level. // *The Federalism*. – 2009. – № 3. – P. 93-108.

economic effectiveness of the budget's execution is a degree of achievement of pre-defined budget final social results, and a rational minimization of the budget expenditures. As to the final social results, one can mention:

- increase of the percentage of employed people (that were unemployed);
- increase of the percentage of cured patients without loss of ability to work;
- increase of the percentage of cured patients with positive medical result;
- decrease of children death rate in maternity hospitals;
- decrease of women death rate in maternity hospitals;
- increase of the part of schools, connected to internet.

Using such indices (which are social standards) in PB needs quantitative expression, even in the financial form.

The financial expression of the social standards comprises financial standards, which can be used for calculating the financial volume of social expenditures. The financial standards are determined for one unit of budget services. But there is a problem: in a market (competitive) economy with instable prices and in the conditions of territorial differentiation these standards could not be determined at federal level. Thus, the practical implementation of PB needs decentralization not only in the determination of result-evaluating indices, but also in the system of regional social and financial standards, which expand the federal social standards to LPS.

In conclusion we would like to underline that the strengthening of the fiscal revenues' centralisation has resulted into the devastation of the sub-federal and particularly of the local budgets. This leads to a poor financial support for local authorities and has negative impact on PB usage at the level of LPS. Another problem is related to the decrease of the local budgets' revenues through the rationalisation of the revenues' redistribution along the vertical line of the budget system.

3.18.Environmental aspects of the creation of an innovative economy in the context of LPS

3.18.1. Main directions of clean production driven by innovative factors

The development of an innovation-based economy in Russia involves continuous technological improvement combined with the organisation of high-tech production with high added value. It is also related to changes in the interaction between the state and business in a wide range of areas, including the environmental field. The latter circumstance is primarily due to: 1) natural resources suffer from quantitative and qualitative depletion, which requires highly rational (efficient) and comprehensive use of these resources; 2) given the absence of key positive trends of environmental improvement in the environmental field over the last few dec-

ades, a wide range of complex challenges need to be resolved. In this context, an assessment of the economic damages caused by the negative human impact on the environment should be carried out. In addition mechanisms for compensation of this damage meeting the good practices in the developed countries, are to be developed and implemented. Ignoring the environmental damage indicators in the process of decision-making results in the adoption of inefficient solutions concerning the territorial organisation of the production and, more broadly, the socio-economic development; 3) it is necessary to implement more effective solution-concerning the emerging acute environmental problems by means of monitoring and early warning mechanisms. All these aspects make the innovation-based environmental management, which supports the changes in the existing values and the development of an adequate institutional framework, highly relevant.

The above-listed problems are especially challenging in Siberia, where the key sectors of the economy, primarily represented by mining and lower levels of the energy production cycle, are, on the one hand, often environmentally hazardous and, on the other hand, are concentrated in a limited number of settlements, thus intensifying the environmental burden.

The innovative development of the economy requires a solution to the environmental problems of the entire country and its regions, thus supporting the sustainable development. This relationship is of a particular importance in view of the current economic crisis: the search for solutions should, among others, be focused on the development of preconditions for clean production.

At present, key environmental challenges faced by Russia and its regions in the context of innovation-based development are associated with the following circumstances:

- 1) necessity of considered government economic policy focused on cleaner production, providing a systematic approach to solving problems of structural and technological changes in the economy in favour of resource-saving and environmentally friendly production, which would not only lay the foundation for an innovative economy, but would also provide economic and environmental benefits;

- 2) development government environmental policies based on strategic planning and management, as the environmental problems are generally long-term and require a strategic approach to their solution;

- 3) need to develop and implement new and effective tools in the field of environmental regulation, thus stimulating: the environmental modernisation of the production; development and use of environmental technologies; development of the market of environmentally friendly products and environmental services; an

environmentally responsible business behaviour. Such tools should be supported by the legislation and through appropriate means of implementation.

The implementation of the innovative development principles into the solution of the environmental problems is manifested in the fact that the modernisation of the technological base of production creates the necessary technical and other conditions for the alignment of the production with the ecology through⁵⁹³:

1) technological innovation, accompanied by increased production efficiency; improving the quality of goods and services; changes in the technological structures and technological methods of production; linkage of the economic development with the requirements for environment protection

2) resource-saving (as one of the key expressions of technological innovation) associated with the introduction of resource-saving technologies. Such an approach will reduce the volumes of various types of natural resources used and will ensure their complete and comprehensive utilisation, thus reducing the environmental burden of the mining and processing industries;

3) environmental innovation, including:

- environmental restructuring and environmental modernisation, through changes in the sectoral structure by reducing the demand for polluting industries or by up-grading the enterprises;
- development and use of environmental technologies (in particular, increased use of technology for waste utilisation, recycling of resources after their treatment, reclamation of lands, etc.);
- development of markets for environmentally friendly products and environmental services;

⁵⁹³ Bobylev S.N., Zakharov V.M. Crisis: the economy and the environment. - Moscow: "Printing Levko", Institute for Sustainable Development. / Centre for Russian Environmental Policy, 2009. – 84 p.; (Burmatova O.P. Innovative aspects of the environmental safety of the region in conditions of financial and economic crisis. // Russian region: innovative developments in conditions of the global financial crisis. All-Russian Scientific Practical Conference. - Volgograd: VAGS, 2010. - P.481-484; Burmatova O.P. Modernisation of environmental policy instruments and issues of implementation. // Region: Economics and Sociology. - 2011. - № 3. - P.170-194.; Priorities of the National Environmental Policy of Russia. / Ed. V.M Zakharov. - Moscow: "Printing Levko", Institute for Sustainable Development / Centre for Russian Environmental Policy, 2009. – 152 p.); Khilchenko N.V., Belova L.P. Priorities of state regulation of innovative environmentally sound development of the area. // Journal of Economic Theory. - 2009. - № 3. - P.147-159. Burmatova O. Ecologization of Production in the Context of Innovation Development in Russia and its Regions. // Platzbestimmung Osteuropas in der sozio-ökonomischen Globalisierung. / Ed. W. Trillenber (Hrg.), A. Krysovaty, Ye. Saveliyev u.a. – Berlin: Forschungsinstitut der Internationalen Wissenschaftlichen Vereinigung Weltwirtschaft und Weltpolitik e. V. Berlin, 2013. – P. 172-188.

- introduction of environmental requirements for technological development; implementation into practice of environmental management systems based on the the so-called "new existing technologies," and relevant to the economic and environmental standards and regulations. Within that context, incentives for innovative activity (especially in the sectors of energy and natural resources exploration, intensive industries and environmentally hazardous sectors), should be applied as they reflect the requirements of the scientific and technological progress⁵⁹⁴;
 - implementation of environmental management systems in industry, internationally recognised and widely used by the vast majority of the industrialised countries for more than 20 years. The implementation of the environmental management systems leads to: improved environmental performance of the enterprise, reduces the environmental risks and increases the competitive advantages;
 - environmental marketing, support (through the development of marketing management tools) to the rapid development of technologies and processes that reduce environmental impact, and accelerated the development of the markets of environmental goods;
 - environmental certification, accompanying the compliance of the characteristics of the manufactured product with the standards in the field of environmental protection;
 - development in Russia of the so-called "intellectual infrastructure" of environmental activities through licensing systems and environmental audits. These are essential tools in addition to the environmental control and regulations.
 - environmental consulting, and others;
- 4) development of tools for eco-innovation, development of markets for environmental services and environmentally friendly products etc.;
- 5) innovation management, legal and other solutions that improve the efficiency of natural resources' usage and the quality of the environment;
- 6) development of national practices based on the international experience in this field (in particular, the economic mechanism of the Kyoto Protocol)

⁵⁹⁴ 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.

3.18.2. Possibilities and limitations of the transition to sustainable, environmentally-friendly and innovative economic development in contemporary Russia

The implementation of the above-mentioned measures for innovative development will not only significantly improve the environmental situation, but will also enhance the competitiveness of domestic enterprises in world markets by improving the environmental performance of their products. However, the practical implementation faces many challenges, primarily related to the need of a mechanism able to stimulate the entrepreneurs to make the transition to new resource-saving and environmentally oriented technologies, the implementation of which would bring tangible and economic and environmental benefits.

In the Russian context this innovative mechanism has not yet been developed. Thus, the country has to rely on both incentives and sanctions on environmentally irresponsible businessmen. This very complex task requires a fundamental change in the existing trends in the economy and, most importantly, a change in the mentality of, first of all, the ruling elite, as it is responsible for the social and economic development, and the development of appropriate environmental and economic policies.

The orientation towards sustainable environmental and innovative economic development in modern Russia is constrained by a number of factors, the majority of which are well known. These include, in particular:

- preservation of the natural resources-based industry with predominance of fuel and energy, metallurgical and forestry sectors combined with natural resources' exports;
- high level of the resource intensive industry (including energy), which tends to a constant increase (currently in Russia the cost of natural resources per unit of GDP is 2-4 times higher than in the developed countries);
- 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 polluting technologies, due primarily to the lack of a satisfactory state environmental policy and to the existence of primitive economic mechanisms in the field of environmental protection;
- considerable wear and tear of equipment, estimated for the various industries to 60-80% or more, related to constantly increasing environmental risks combined with risks of accidents due to the lack of technical and technological reliability;
- unfavourable environmental situation in many parts of the country, which has a negative impact on human health and life expectancy (according to

WHO estimates, the influence of the environmental contamination on people's health is about 20%; in Russia the contribution of the environmental factors to the morbidity and mortality in most regions of the country is at least 2-fold higher);

- accumulated over decades environmental problems, which are often sharpen by problems encountered in recent years (including problems related to the weakening of the state control and the hasty privatisation of property). It is a task of the state to develop appropriate mechanisms for problems' overcoming and for the provision of compensations for damage caused

Current negative trends could only be reversed by means of a transition to an innovative economy and technological modernisation. This transition will be accompanied by an important number of environmental solutions. It will reduce the human impact on the environment, will prevent the depletion of natural resources and will rationalize their use. In addition, it will significantly improve the living conditions, by creating prerequisites for pollution reduction, thus contributing to population's health and longevity.

Given this, the strategic objectives in environmental innovation should focus primarily on:

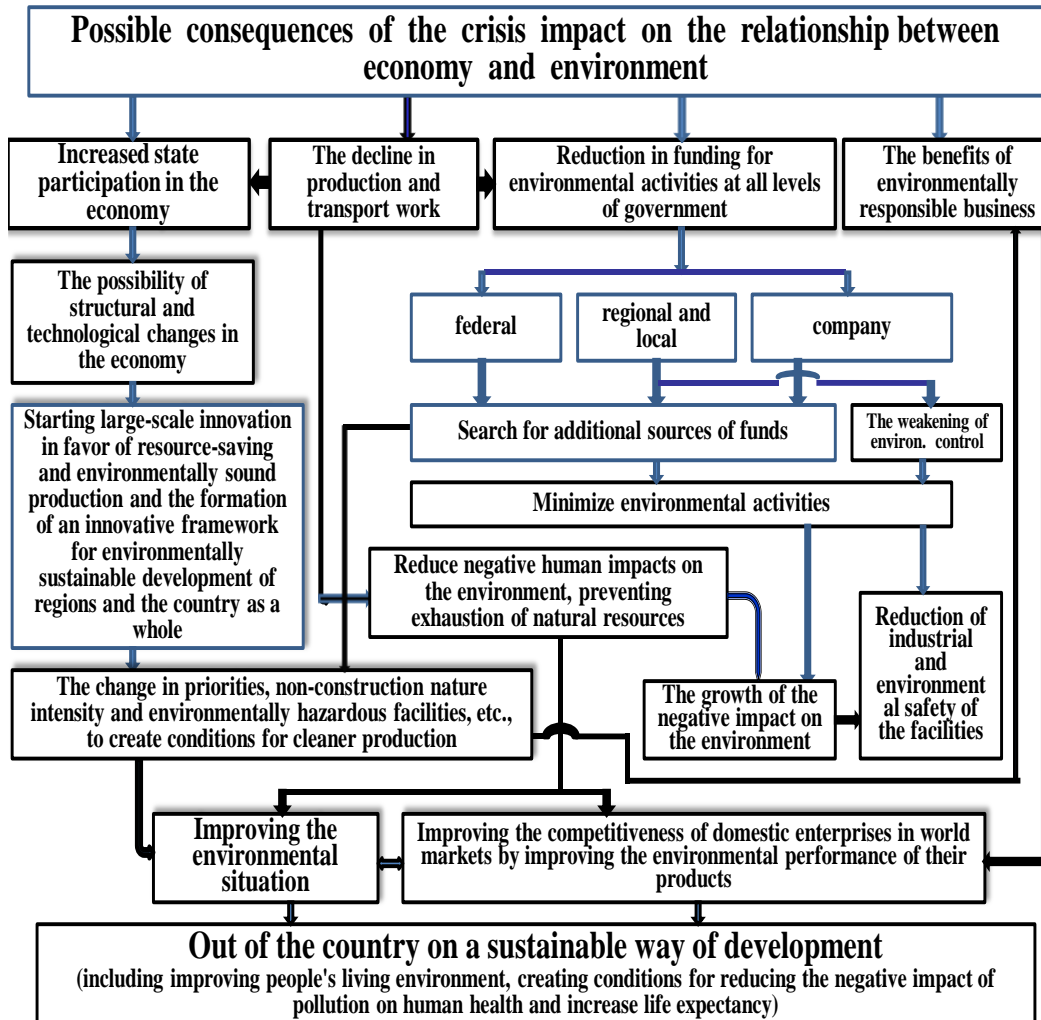
- 1) achievement of the desired practical results in the improvement of the environmental situation;
- 2) control of the environment as one of the essential elements of the state regulations in the field of nature management;
- 3) development of incentives for environmental investments;
- 4) strengthening the cooperation among the relevant stakeholders under the auspices of the authorities at all levels.

3.18.3. Possible consequences of the influence of the financial crisis on the relationship between the economy and the environment

Modern crises are significantly influencing the relationship between the economy and the environment. The 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 - its relative improvement, allowing a reduction of the load on the environment (Fig. 3.6.).

The decline in production and reduction of transportation lead to a reduction in the emissions and discharges, as well as to reduced energy demand, which in turn leads to a decrease in revenues of carbon dioxide and mitigates the greenhouse effect.

Fig. 3.6. Possible consequences of the crisis impact on the relationship between economy and environment



However, such a reduction is only temporary (as experience shows), as the crisis pressure on the environment is not only restored to the same level, but, as a rule, becomes much stronger. This occurs, in particular, because of the desire of the enterprises during the economic crisis, to reduce their production costs. In addition, during the crisis of power (especially at local level), local authorities often mitigate the environmental requirements for some individual producers and generally weaken the environmental control. As a result, the environmental situation in the region usually deteriorates.

The decline in production is accompanied by a decline in the financial resources of the producers and the companies are forced to seek additional sources of internal funds. This is most often seen in the curtailing of the environmental activities, as they are not directly involved in the main production process. Thus, the company will first try to save on the environmental costs, related to equipment, electricity, expensive reagents, etc. This was shown by the experience of the crisis of 1997-1998 in Russia, when the reduction of the environmental pollution was related to an inadequate drop in production, and in some cases there was a marked deterioration of the environmental situation.

In times of crisis, decrease in the costs for environmental protection could be observed not only at production level, but also at all levels of territorial administration - from federal to local (leading to partial or complete curtailment of the environmental programmes).

In addition, the crisis creates opportunities for environmental problems' resolving⁵⁹⁵. First of all, the participation of the state in the economic problems' solving increases, thus the opportunity for radical structural and technological change, combined with transition from resource-based economy to an innovative environmentally sustainable economy arises.

Financial resources reduction at 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 hydro-and nuclear power plants (often highly questionable in terms of their economic and environmental effect), or other projects foreseen.

The structural transcreation of the economy requires significant investments and time to implement them. The action of the Russian government to rescue the major energy and metals companies illustrates not only the consolidation of the commodity nature of the economy, but also leads to a shortage of funds for investments in the production modernisation and diversification. As a result, instead

⁵⁹⁵ Bobilev S.N., Zakharov V.M. Crisis: the economy and the environment. – Moscow: "Printing Levko", Institute for Sustainable Development. / Centre for Russian Environmental Policy, 2009, p. 84; Burmatova O.P. Innovative aspects of the environmental safety of the region in conditions of financial and economic crisis. // Russian region: innovative developments in conditions of the global financial crisis. All-Russian Scientific Practical Conference. – Volgograd: VAGS, 2010. - P.481-484; Priorities of the National Environmental Policy of Russia. / Ed. V.M Zakharov. – Moscow: "Printing Levko", Institute for Sustainable Development / Centre for Russian Environmental Policy, 2009. – 152 p.; Burmatova O. Ecologization of Production in the Context of Innovation Development in Russia and its Regions. // Platzbestimmung Osteuropas in der sozio-ökonomischen Globalisierung. / Ed. W. Trillenber (Hrg.), A. Krysovaty, Ye. Savelyev u.a. – Berlin: Forschungsinstitut der Internationalen Wissenschaftlichen Vereinigung Weltwirtschaft und Weltpolitik e. V. Berlin, 2013. – P. 172-188.

of the development of high-tech industries, related to reduction of the environmental pollution, we will have the opposite effect.

The consequences of the economic crisis in Russia, especially in Siberia, will have a faster and more painful impact on the environmental situation if the opportunity to modernise the production, which can help the industry to embark on a new “environmental” pathway thanks to the new technologies, is missed. However, one cannot ignore the fact that in the context of the current crisis the Russian companies, while being in search of additional sources of funding, do not try to identify the best technical solutions.

Rather, they opt to pursue a cost-saving approach and, above all, to save money on environmental protection. Therefore, it seems that the appeal of the country’s leadership to the Russian companies to exploit possibilities for production modernisation (including environmental modernisation) is unlikely to be heard by business circles, and after the crisis one can expect a significant increase in the anthropogenic burden on the environment.

Against this background, and in view of the current financial crisis, one cannot expect that the attitude towards the environment will drastically improve. It is also important to keep in mind that the environmental problems usually require long-term solutions and the attention to these problems decreases during a crisis.

An important aspect of the financial support for environmental protection measures during a crisis (and beyond) is related to the shortage of funds for core operations which pushes aside everything else, especially environmental protection measures. At the same time, the environmental protection measures should be of a long-term nature: they require long-term investments with a rather substantial investment delay when, on the one hand, cost recovery is long-term, and, on the other hand, it might never be achieved (for example, in view of the existing criteria for investment efficiency that usually ignore the economic damages caused by pollution).

Under the current financial conditions, one of the most critical financial problems in Russia is associated with the lack of so-called “long money” (i.e., funds allocated by banks for a period longer than one year), whereas the environmental sector remains outside the range of priority areas. Possible solution to this problem could be the use of new financial mechanisms, such as collective investors (mutual funds), syndication and bonds⁵⁹⁶. The advantages of such sources of funding consist, first of all, in their low cost compared to the commercial loans and, secondly, in their big attractiveness for investors, because of the use of new technol-

⁵⁹⁶ Vasilenko V.A. Innovations in resource provision of environmental measures. - URL: http://www.ogbus.ru/authors/Rodionova/Vasilenko_2.pdf.

ogies, participation effect, transparency, use of international reporting systems, improved quality of products and services, and environmental safety of production.

After all, the selection of an environmental scenario for implementation will largely depend not only on the legislative and regulatory support, effective economic mechanism for environmental regulation, and many other factors, but also on the political will of the authorities, as well as on the real steps made in order to use the current situation for the purpose of the economy's modernisation. It should be added that, under the today's market conditions, the current level of environmental protection and the use of resource-saving technologies also determine the competitiveness of the Russian economy worldwide (or rather, the lack of such competitiveness). At the same time, the increasing demands for environmental quality and safety of products, and the switch to the use of environmental parameters in the production technologies are among the most important characteristics of the increasing international competition.

Green innovation-based development not only allows to gradually reduce the level of the negative human impact on the environment, but also to create benefits for the environmentally responsible businesses (which requires the establishment of relevant economic rules), thus contributing to the country's orientation towards the sustainable pathway of the socio-economic development. In turn, the state will be given the opportunity to carry out structural and technological transcreations of the economy in favour of resource-saving and environmentally friendly industries and to create the basis of environmentally sustainable and innovative development of the country and its regions. The successful development in this direction and the achievement of a more favourable environmental situation providing better quality of life and health for the population in the country largely depend on the coherent actions undertaken by regional authorities, business, and the society at large in the field of environmental protection.

The current crisis has shown that the state should be present in the economy, yet not so much as an owner but as a regulating and guiding force. Only the state can initiate large-scale processes, such as modernisation and innovative transcreation of the economy.

In general, the problems of modernisation, faced by the Russian economy, require changes of the value criteria for a wide range of relationships, including those with the environment. At the same time, it is not very relevant to only address the technological innovation, without creating an appropriate institutional framework, one element of which involves building a relation with the natural environment. A new paradigm in the field of the environmental protection, based on the concept of the sustainable development, proceeds from the awareness of the need to reject the consumer attitude towards the environment and to build a partnership with it.

The positive 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. It is also about the environmental ethics, respect for the natural environment, strengthening of the principles of eco-efficiency and environmental justice.

In other words, it is necessary to change the criteria, to develop the necessary the institutional framework, without which the modernisation of the economy is doomed. The institutional reforms should be aimed at the implementation of a new and better legal and economic mechanism to regulate the interaction between the different governmental level and the natural resources, subject to the mandatory inclusion of the environmental requirements in the procedure for assessing the socio-economic benefits of the management decisions.

3.18.4. Implementation of investment projects in the region of new assimilation (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 investments to 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.

An important role is played by the Boguchan hydro power plant, which is currently under construction (close to being operational). In addition there are: some important infrastructural projects. In particular, two railway connections to the area (Achinsk–Lesosibirsk and Reshoty–Karabula), the Karabula–Yarki railroad, an automobile bridge across the Angara river; several highways (including the Kansk–Kodinsk highway) are being built. One can also name other ongoing projects, such as the connection of Ust–Ilimsk to Lesosibirskii as part of the North Siberian railway.

All these advantages of the Lower Angara area have prepared the ground for the development of (starting from the Soviet period) projects for the integrated development of the area⁵⁹⁷, which are embodied in the ongoing investment project

⁵⁹⁷ Guidance on the development of the State programme of development of the Lower Angara region for the period up to 2005. Novosibirsk: IEIE SB USSR. / Scientific. Ed. V.V. Kuleshov, M.K. Bandman. In two parts. Part 1. – 70 p. Part 2. (Appendix 4: Table materials). – Novosi-

called “Integrated Development of the Lower Angara Area”⁵⁹⁸. This project is in fact only a part of the federal target programme for the development of the Lower Angara Area⁵⁹⁹. The first stage of this programme (2006–2012) is limited to the development of the Boguchan industrial hub (the Boguchan power plant, aluminum plant, and a pulp and paper mill). No doubt, the building of large infrastructure facilities has a great potential for the development of the area at the initial stage. In the longer term (the second stage covers the period 2013 - 2020), it is foreseen to build new enterprises in the Kodinsk (the Tagara mining plant and a cement plant) and the Boguchan (gas processing and gas chemical plants) industrial hubs. New production is also envisaged in the Motyginisk area (the Gorevsky ore mining plant and the Motyginiskaya hydro-power plant). The second phase of the development of the Lower Angara area is mainly associated with the development of oil and gas deposits for the East Siberian oil and gas industry (the southern part of Evenkia). Therefore, in addition to the construction of several industrial facilities, and the development of transport and energy infrastructure, the second phase of development goes beyond the Lower Angara area in terms of its territorial coverage. The financial needs of the second phase are estimated at 540 billion rubles. One should note that at present the area is characterised by: low pace of economic development, economy’s orientation towards the forest industry, high share of the grey economy, stable population outflow and high unemployment.

The 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. The financial support by the state (from the Investment Fund of the Russian Federation) is provided on co-financing basis and is aimed at the building of large transport and energy infrastructure, which should contribute to the strengthening

birsk, 1990. – 48 p.; Lower Angara region: logic design and basic concept of the programme of development of the region. – Novosibirsk: IEIE SB RAS, 1996. – 231 p.; On the realization of the federal target programme for the development of the Lower Angara Region: Government Decree of 19.01.98 № 66. – Laws of the Russian Federation, 26.01.98, № 4, Art. 487.

⁵⁹⁸ Investment project «Integrated Development of the Lower Angara region». - URL: http://www.sibarea.ru/investment/investment_projects/id/5/.); Instruction of the Government of the Russian Federation of 30.11.2006 № 1708-r (as amended on 17.03.2010). - URL: <http://www.referent.ru/1/152710>).

⁵⁹⁹ On the realization of the federal target programme for the development of the Lower Angara Region: Government Decree of 19.01.98 № 66. - Laws of the Russian Federation, 26.01.98, № 4, Art. 487.

of the industrial potential of the region. In this case, 55.2%⁶⁰⁰ of the funds required for the project, are provided by Vnesheconombank.

While describing the investment project as a whole, it should be noted that in it there are no such important features as: complexity of the development of the area related to the basic sectors of its economy; establishment and operation of all facilities; desire to build an innovative development model meeting the demands of STP; development of local infrastructure, taking into account requirements for environmental protection and restoration of natural resources; complex social problems solving, aimed at improvement of living conditions; use of available natural resources taking into account both business and population interests (and in general in the context of sustainable development - in the interest of present and future generations), etc.

Both previous developments and the above mentioned investment project pay insufficient attention to environmental issues, including those related to the building of the Boguchan reservoir and compensation of damages. The building of the Boguchan reservoir, does not make use of science-based predictions of the long-term impact on the quality of water in the reservoir, the ecosystem of the Angara river and the reservoir itself. The assessments of the accumulated toxic substances in the water and on the bottom of the reservoir are limited. This project continues the established practice in the construction of hydro-power plants where the focus is largely put on the waterworks, while everything else is considered as minor and insignificant. The project also largely ignores the problem with the two environmentally incompatible large-scale production facilities located next to each other (i.e., the Boguchan aluminium plant and the pulp and paper mill).

At the same time, the assimilation of the Lower Angara requires a considered approach starting with integrated economic, social and environmental priorities through the development of high-tech production and establishment of energy-efficient and environmentally friendly enterprises. This will determine whether the region will remain mostly raw with emphasis on the integrated development of the area comprising "hydroelectric station - aluminum plant" or "forest, water - pulp and paper mill", or attention will be paid on the diversify of the economy as a whole, thus creating conditions for long-term sustainable development.

The specific natural conditions of the Lower Angara area are among the key factors that determine the need for the development of technologically advanced industries. These conditions have significant impact on the environmental situation

⁶⁰⁰ Krichevsky N. What was the public-private partnership in Russia. – URL: <http://www.mk.ru/economics/article/2009/11/10/382824-chem-stalo-gosudarstvennochastnoe-partnerstvo-v-rossii.html>.

in the area. The Lower Angara area is characterised by a low assimilative capacity, which is due, firstly, to its high potential for atmospheric contamination (the worst conditions can be observed in the settlements of Lesosibirsk and Kodinsk) and, secondly, to the low self-purification capacity of surface water leading to important levels of water pollution (by suspended materials, phenols, oil, and other organic substances). Water quality does not satisfy the adopted standards, which in turn puts forward special requirements for nature preservation technologies to be applied by the industrial facilities set-up in the area. The situation is more complex because of the building of reservoirs and the breaking of the natural hydrological regime of the river. In addition, one should note the high level of background contamination of the aquatic environment in the settlements of Boguchan and Kodinsk. Thus, the implementation of the investment project will create a serious anthropogenic burden.

The choice of capacities for the future industrial facilities in the area is equally important. Thus, the planned annual capacity of the Boguchan aluminium plant is 600000 tons, which does not comply with the international standards: the maximum power of the aluminium smelters worldwide is 200000–250000 tons per year. At present, it is close to 190000 tons per year⁶⁰¹. Furthermore, the environmental incompatibility of the aluminium production with the processes of pulp and paper production entails the risk that Boguchan can repeat the sad fate of Bratsk, where the development of similar super industries resulted in the extinction of the coniferous forests and more frequent occurrence of cancer among children.

In general, the lower regeneration capacity of the natural environment of Lower Angara Area implies strict requirements for production technology, including both technological (core production technology) and environmental (environmental protection measures, etc.) innovation. One can only consider the establishment of complex economic facilities in the area in general and, more specifically, the foreseen combination of plants and their respective capacities, if the above conditions are met. At the same time, it is not only necessary to give priority to advanced low-waste technologies for the core production of the planned facilities, but also to implement a range of environmental activities, which comprehensively cover all aspects of the anthropogenic impact on the environment, including the possibilities for rational placement and territorial organisation of the productive forces, waste disposal, selection of suitable technological options for the disposal of pollutants and their combinations, etc.

⁶⁰¹ Akhmedov S.N., Gromov B.S., Lankin V.P., Pak R.V., Kozlov V.A. On the question of the optimal production capacity in the construction of aluminum smelters. // *Non-Ferrous Metals*. – 2002. – № 12. – P.4-7; Akhmedov S.N., B.S. Gromov, Lankin V.P., R.V. Park, Kozlov V.A. The financial and economic optimization of the production capacity in the construction of aluminum smelters. – URL: <http://www.alcorus.ru/articles/6.ru.html>.

Therefore, the specific situation in the area dictates the need for the development of an adequate innovation policy for exploration. Such a policy should be both bottom–up (initiated at the level of individual facilities) and top–down (initiated at the level of the federal government and the government of the Krasnoyarsk krai). In the first case, one can rely on environmentally friendly technologies (including the organisation of waste management), introduction of environmental management systems in the industrial plants, environmental certification, environmental marketing, etc. In the second case, possible measures are: evaluation of the long-term structural interests of the regional economy; elaboration of tools for environmentally innovative activities; encouraging the introduction of environmentally friendly technologies; development of environmental requirements for technological continuous improvement; development of licensing systems for all types of activities negatively affecting the environment; environmental expertise; implementation of environmental audits, etc. The transfer of the investment project into a federal target programme could provide a solution to many of these problems.

CONCLUSIONS WITH A VIEW TO THE FUTURE DEVELOPMENT OF LPS

The research on the functioning and development of local production systems in countries in the EU (Bulgaria, Poland, Slovakia) and outside the EU (Russia, Ukraine) carried out by the project team lead to the following conclusions:

- From a regional standpoint, the functioning of LPS in different countries has specific characteristics: in some regions, LPS function on the basis of dominant microenterprises, as is the case with classical Marshall industrial zones; in other regions, LPS are a result of smart specialisation controlled by big multinational corporations; in yet other regions, LPS are closely related to the availability of raw materials, as well as to the traditions of local communities. However, the factors that determine the type of LPS do not act in a single direction or in an unobstructed manner. For example, technological innovations, product upgrades, and decreasing product life cycles, combined with continuous updates of production factors, create new challenges related to the human factor and its adaptability.
- Technical, economic, social, and environmental changes that shake the world also change the spatial behavior of business entities, leading to an increased flexibility in the choice of raw materials. Similarly, business entities display flexibility in their choices of applied technologies, modes

of transportation of raw materials, and depth of processing. Constantly changing conditions have a positive impact on the spread of activities at intra-regional, national, and supranational levels. Thus, the internationalisation of LPS plays an important role in overcoming low levels of innovation among LPS business entities, in gathering experience, and in fostering cooperation not only among R&D enterprises, but also in the field of intellectual property rights.

- LPS development requires combining production integration with management activities (ensuring institutional support, strategic planning, networking, coordination of local initiatives). Thus, through interaction, “local stakeholders” utilise their capabilities and resources to benefit the socio-economic development of the territory, to establish partnerships with external stakeholders, to exchange best practices, to develop joint business initiatives, and to widen the target markets of the LPS production.
 - business entities face the need to not only adapt to the regional environment, but also to actively participate in the creation of the conditions necessary for its future development. This regional environment may be open to "absorption" of economic initiatives, or it may create barriers, be it technical, organisational, or psychological in nature. In most cases, technical barriers correlate with an unsatisfactory level of technical infrastructure, while the organisational barriers are mainly related to management systems and are rooted in the public administration’s suboptimal performance.
 - LPS business entities participate directly in the processes of local development and have common interests in terms of future regional dynamics. These entities interact not only in accordance with their perception of the internal regional environment, but also in accordance with their role in the implementation of the activities that develop and shape that environment. To a LPS, formulating a claim to its environment is closely related to the strategic assessment of that same environment as such an assessment is a fundamental link in the chain "formulation requirements–feasibility requirements".
- LPS need financial support mechanisms to develop. Between 2007 and 2013, such mechanisms were related to the Cohesion Policy of the EU and were oriented towards developing the infrastructure of one of the main LPS types – clusters. The EU financial mechanisms serve not only to encourage cooperation between entrepreneurs and other participants in the LPS, but also to build trust between them.

- LPS require investment aid to facilitate the initial investment. It should come in the form of state-sponsored financial aid (subsidies from the state budget) aimed at creating a favourable investment climate. The selection criteria for receiving such aid should be clearly stated in the evaluation procedure to grant: 1) financial assistance for infrastructure development or for the acquisition of tangible or intangible assets; 2) tax exemptions, 3) allowances on the transfer or exchange of property, etc. It should be noted that financial support from the local authorities is as important to the successful establishment and functioning of LPS as the financial support from the state.
- Public-private partnerships as a form of cooperation between state, local structures, and private structures have an essential role to play in the implementation of major infrastructure projects. In such partnerships, the resources and competences of each partner complement each other to create synergies. The relations between the different partners can be arranged using various modalities (contractual basis, concessional basis, lease basis, etc.), depending on the selected financing mechanism and management model.
- There are objective factors that interfere with the implementation of public-private partnerships at local level. They are mainly related to the big territorial differences in the level of socio-economic development among countries in and outside the EU.

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