

ZBIGNIEW MAKIEŁA

## Regional Innovation Systems in the Process of Region Management

### Abstract

Regional Innovation Systems constitute a particular type of network systems. All belonging to them, and institutional traders are to actively participate in the creation and implementation of innovation and achieve in this respect as the greatest benefits. Relations between the network participants based on the principle of cooperation, exchange, and not on the principle of subordination of some subjects to others. RSI require such a change in the approach to the management of the region to the individual network elements have been able to meet emerging in the manifold difficulties of everyday life. The implementation of innovation policy in the region requires absolutely support from the local authorities. RSI network system is the optimal solution for the construction of a regional knowledge-based economy. In Poland we are now at the stage of developing RSI and support them-Regional Innovation Strategy. The latter are designed to raise the level of innovation in the local economy by creating dependencies between important for the actors (universities, regional development agencies, local authorities, institutes, R & D). It's about even better use of the resources accumulated in the region of knowledge, technology and experience related to the implementation of innovative business ventures.

### Introduction

Changes currently taking place in the global economy focus on gaining lasting competitive advantage of particular company, region, country or organization over competition. This process requires changes in the very concept of how business entities function, as they have to adjust to new trends of global economy: there is a shift from mass production, labour-consuming and material-consuming type of economy

towards the type of economy in which innovation is the main factor stimulating economic growth and competitiveness. The regions which based their development on innovative economy have become the leading regions in a relatively short period of time. Specialisation in manufacturing products which require a great deal of innovation led to technological advancement of such economies and, consequently, their economic growth. Currently the most significant challenge for business entities and regions is finding the answer to the question as to where and how to search for innovations? Identifying the sources of innovation requires not only a careful diagnosis of regional material resources but also intellectual ones since they are absolutely essential in gaining a lasting competitive advantage and becoming successful on the market.

## Regions of Knowledge

Creating the Regions of Knowledge and Innovative Regions is a process which is complex, long-lasting and diversified regionally. The regional aspect is especially noticeable in Poland with its significant diversification of particular regions in relation to their development potential. In well-developed regions the process of building the knowledge-based economy can be achieved relatively quickly and so can be enhanced their competitiveness. In the reality of a free market economy, competitiveness of a region means gaining lasting advantage over other regions. It manifests itself in systematic reinforcement of regional firms, searching and developing areas of business activities, building links between science and economy, caring for the development of regional labour market. Great care in attracting new investments, which are necessary to boost development and competitiveness, is particularly crucial in poorly-developed regions (e.g. provinces of eastern Poland). Investments, and foreign investments in particular, are especially desirable in such areas due to the possibility of importing innovative capital. Not every region is the area where there exist adequate conditions for creating and implementing innovations, which are, as it has already been emphasized, absolutely essential in creating modern economy. The best conditions for developing innovations can be encountered in well-developed regions and, these are the ones which are already competitive. In such regions the local self-government and entrepreneurs can identify correctly the needs of domestic and local economy, and they can utilize knowledge for the region development and modernization<sup>1</sup>.

In Poland the best chances for building a modern economy have those regions where industry and service sector are already technologically advanced, and the links between science and economy are likely to increase the competitiveness

<sup>1</sup> S. Korenik, 2007, Budowa Gospodarki Opartej na Wiedzy w przekroju regionów jako wyzwanie dla procesów integracji krajów UE, [w:] Innowacyjny jednolity rynek – wyzwaniem dla wymiaru gospodarczego UE, Warszawa, Urząd Komitetu Integracji Europejskiej, s. 79–80.

of the firms based in the region. Local self-government, being an important player on the map of regional system, has a crucial role to play here. The role of the local self-government in the process of building regional structures of economy is not limited only to inspiring business initiatives, financial and logistic support for business entities. Local self-government should coordinate the activities of centres of regional management with the tasks of Regional Innovation Systems (RSI).

Local self-government should coordinate the activities of regional management centres with the tasks of Regional Innovation Systems (RSI). Regional Information Systems, incorporating regional institutions from both private and public sector, business entities and other regional institutions, should form a co-operation platform according to the criteria accepted by all interested parties. The system defined in this way is the initial stage of building the concept of region management based on network relations and is composed of local self-government (leader of the structure), regional management centres (e.g. regional development agencies, information centres, financial advice centres, etc), RSIs grouping innovative companies, universities, research and development centres, banks, organizations which support innovations and entrepreneurship (business incubators, regional technology transfer centres, technology parks, etc.).

In the literature on the subject RSI<sup>2</sup> is perceived as a system, in which the function of creating innovations is the dominant one. RSI is a system in which adaptive and modifying ('learning') activities are prevailing. The region which focuses on implementing innovations will always be a 'learning' region. Florida<sup>3</sup> compared a 'learning' region to a 'learning business enterprise' which introduces improvements, new solutions, improves its own structure and organisation. In 'learning' regions the knowledge is generated in the society thanks to mutual cooperation; it is practical knowledge related to the current needs. In the creation process scientific research centres, learning institutions and specialist from different fields participate. Generating knowledge in a 'learning' region should be supported by local authorities. According to Korenik<sup>4</sup>, a 'learning' region undergoes constant changes, creates highly-evaluated technological innovations, changes radically its activities and, consequently, is able to avoid fossilization.

According to the author the 'learning region' is the creator of network relations within a region, in which a rising number of business entities, schools and social organisations take part. The most important role in this process is attributed

---

<sup>2</sup> M. Miedziński, *Koordynacja procesów innowacji na przykładzie polskiego województwa. Aspekty instytucjonalne regionalnych systemów innowacji*, [w:] *Gospodarka Oparta na Wiedzy – wyzwanie dla Polski XXI wieku*, (red.) A. Kukliński, Warszawa: KBN 2001, s. 212.

<sup>3</sup> M. Gibbons, C. Limoges, H. Nowotny, S. Schwartzman, P. Scott, M. Trow, 1994, *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*, Londyn: SAGE Publications, s. 19.

<sup>4</sup> S. Korenik, *Budowa Gospodarki Opartej na Wiedzy w przekroju regionów jako wyzwanie dla procesów integracji krajów Unii Europejskiej*, [w:] *Innowacyjny jednolity rynek – wyzwania dla wymiaru gospodarczego Unii Europejskiej*, Warszawa: Urząd Komitetu Integracji Europejskiej 2007, s. 84.

to local self-governments and specialist institutions created by self-governments in order to satisfy the needs of network economy. The main objective is the rational use of local economic base of the region, attracting investments fostering the economy growth, and the ones which are in line with the development directions defined in the regional development strategy.

Local self-governments supporting the creation of knowledge-based economy (GOW) should be interested in creating RSI, which may be a tool in building regional network relations. The role of RSI is encouraging business entities, science and educational institutions and organisations to form network structures, and in doing so pointing out potential benefits resulting from economic relations between network members, relations which are based on cooperation between them and not subservience.

In the concept model of RSI the dominant approach in region management is the one which displays such structuring of mutual relations that would enable overcoming competitive, organizational and structural barriers. Conducting a rational policy of creating ‘innovative region’ should serve this objective. According to Metcalf the implementation of this task requires considerable commitment from local authorities in the process of developing strategies for innovative region management<sup>5</sup>.

We are in Poland at the initial stage of developing RSI and Regional Innovation Strategies. The latter are aimed at increasing the level of innovativeness of the local economy through fostering mutual relations among the important subjects (institutions of higher education, regional development agencies, local authorities, R&D centres). The idea is to optimize the accumulated regional natural resources, knowledge resources, modern technologies and experiences relating to the implementation of innovative economic enterprises. Until recently, the guiding principles for the development of regional systems and innovation strategies were provided by Lisbon Strategy (2000–2010); presently, the guiding principle will be provided by the new development strategy for the European Union, that is the document prepared by the European Commission and entitled ‘European Union 2020’.

## Model of Regional Innovation System

Regional System of Innovations is based on three types of activities:

1. development of innovation and entrepreneurial centres
2. development of financing instruments for new businesses and risky innovative initiatives
3. promotion of technological entrepreneurship

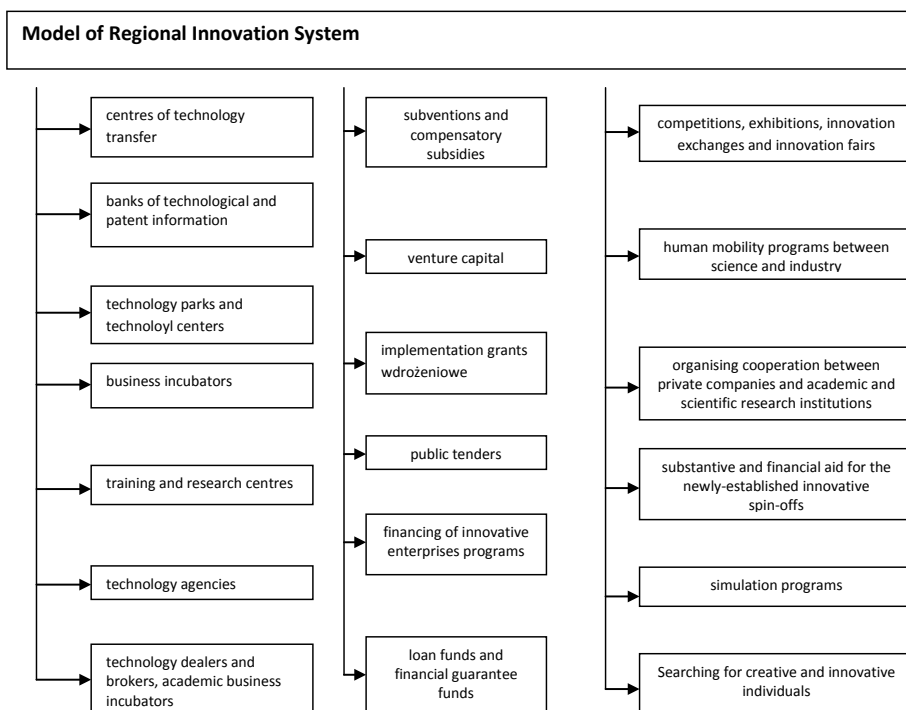
---

<sup>5</sup> L. Metcalfe, *Public management from imitation to innovation*, “Australian Journal of Public Administration”, vol. 52(3), s. 292–304.

Innovation and entrepreneurial centres include, among others, centres of technological transfer, banks of technological and patent information, technology centres and technology parks, business incubators, training and research centres, technology agencies, technology dealers and brokers as well as academic business incubators.

The second type of activities include subventions and compensatory subsidies, risk funds (venture capitals), implementation grants, public tenders, financing of innovative enterprises programs, loan funds and financial guarantee funds from para-bank institutions.

Activities which promote and inspire technological entrepreneurship include various competitions, exhibitions, innovation exchanges and innovation fairs, human mobility programs between science and industry (MSP in particular), organizing cooperation between firms and scientific research institutions, substantive and financial aid for the newly-established spin-offs, simulation programs, as well as searching for creative individuals.



Source: own study.

Cooperation within the framework of Regional Innovation Systems include regional and local authorities, self-governments, universities, innovation

and business centres, research and development centres, professional trade associations, consulting firms and agencies, financial institutions, companies from production and service sectors as well as their research and development base. The above-mentioned centres and institutions functioning within RSI focus on the following:

- increasing the quality of people's education through education, training, counselling, providing information and models of functioning,
- providing organisational and financial support for innovative enterprises,
- creating systems which link science and economy (cluster, industrial district),
- transferring technology and systems of relations between companies and research centres,
- networking between companies, administration and the third sector,
- promoting entrepreneurial spirit, informing people and motivating them to become self-employed.

The structure of a Regional Innovation System includes interrelated business entities, public and private institutions, which are focused on the creation, promotion and popularization of entrepreneurship and innovation.

## The Concept of innovative economy

One of the main priorities of the European Union member states as specified in the Lisbon Strategy is building an innovative economy based on knowledge. The main role in realization of this task is played by particular regions of the EU member states, in which regional policy should be focused on building modern and competitive economy. The EU policy of integrity implemented in the years 2007–2013 was clearly oriented on implementation of innovative solution. Innovations have become a top development priority for the European Union.

Statistics show significant disproportions between particular EU member states and regions in terms of innovativeness and scientific research activities; they also show a huge gap between the European Union and its most important competitors in the world. Europe has to become more competitive, it has to react faster for the changing situation on the market and changing consumers' preferences. Europe has to shape the societies and economies that would be friendly towards innovation. This objective can only be achieved with the application of the strategic principle which emphasizes partnership between business entities, scientific research centres, education centres and the public sector. A great deal of activities which stimulate scientific research and innovations is undertaken most effectively on a regional level.

In the EU countries the main instrument of shaping innovation policy on the regional level is the regional innovation strategies. European regions began to implement these strategies as early as in the mid-1980s. In our country such strat-

egies were defined and approved by regional self-government in all regions of Poland. Regional Innovation Strategies (RSI) are supposed to build an effective system for supporting innovations in particular regions. They constitute a solid basis for effective regional innovation systems. They define strategic objectives of innovation policy in the regions as well as ways and methods of reaching them.

The main task of the cohesion policy in the next programmed period will be decreasing the innovation deficit in the individual EU member states. Consequently, investments planned within the framework of this policy focus on the following four key elements: activities in the field of scientific research and innovations, entrepreneurship, ICT application and, finally, human capital development. Additionally, the initiative called 'Regions for the economic changes' supports building networks of contacts and learning from other regions based on sharing regional experiences on improving ICT, developing human capital and providing innovative impulse in industrial clusters.

In the context of the above considerations, the following may be concluded:

1. Region of knowledge – specifies the role of knowledge in determining the processes of regional development and identifies in what way, theoretically and practically, contributes to creating attractiveness and building knowledge-based economy on the regional level.
2. Innovation region – focuses on identifying regional mechanisms of creating innovation processes. It describes the essence of the regional aspect of innovation policy, it is especially important in the development policy of Polish regions.
3. Region in a global economy – shows in what way local and regional community may benefit from the process of globalisation without being marginalised and unified, effectively strengthening its position on the market. The effectiveness of successfully conducting regional development policy depends nowadays primarily on knowledge, competence and awareness of participating 'actors' who play the role in defining priorities and determining the implementation phase. Therefore, the knowledge we present in this coursebook is both educational and systematising in its character; most importantly, however, it should serve as an example of good economic practice in the public sector with respect to using modern tools and factors responsible for region development. – The aforementioned knowledge is presented from the economic, sociological and managerial perspectives. It is addressed to theoreticians as well as practitioners who have to deal with issues relating to the management in local self-government institutions.

## Categories of regions in relation to knowledge

In the analytical study “The regional impact of technological change in 2020”<sup>6</sup> commissioned by DG REGIO, Wintjes and Hollanders divide all European regions into seven categories according to socio-economic criteria of regional economies and the principle of knowledge-based economy.

Table 1: Categories of EU regions

<b>Metropolitan regions of knowledge</b>	23 most-densely populated metropolitan areas in Western Europe. These are regions with the highest absorption and providing access to knowledge capabilities, yet with average capabilities of creating knowledge. They are highly-urbanized regions with the highest level of economic development of all EU regions. Most of them are the areas surrounding the largest capital cities.
<b>Regions of knowledge absorption</b>	76 regions, mainly in France, Great Britain, northern Spain, Benelux countries. These are regions with a rising absorption capabilities and average capabilities of creating and providing access to knowledge. These regions show above-average level of economic development and well-balanced development of all branches of knowledge
<b>Public centres of knowledge</b>	16 regions, mainly in Eastern Germany and metropolitan areas in Eastern Europe. These are regions with average knowledge absorption and knowledge creation capabilities. Their level of economic development is comparable with the EU average, they display steady and substantial economic growth
<b>Industrial EU regions with highly-qualified people</b>	Practically, these are all 44 regions in Eastern and Central Europe. These are regions with below-average capabilities of absorption, creating and providing access to knowledge. These are regions with prevailing, until recently, traditional industry; however, they quickly narrow the gap in their pursuit of highly-developed countries
<b>High-tech Regions</b>	17 regions in Germany, Finland, Sweden and Holland where ‘new technologies’ companies are based; these are regions with above-average ability to absorb, create and provide access to knowledge; these regions show higher-than-average level of economic development and rapid growth, although only in the field of new technologies
<b>Regions of new technologies</b>	38 regions in Germany, northern Italy and Austria. These are regions with above-average capabilities of absorption, creating and providing access to knowledge, yet their growth is below average
<b>Traditional southern regions</b>	39 regions in southern Europe (Portugal, Italy, Greece and Spain). These regions have below-average capabilities of absorption, transforming and access to knowledge. They display below-average level of economic development, many regions in this category focus on farming and tourism.

Source: The regional impact of technological change in 2020.

<sup>6</sup> R. Wintjes, H. Hollanders, 2002, *The regional impact of technological change in 2020*, Framework Service Contract, Ref SC36 Regional Impact, Synthesis report, Final version, s. 232.



According to the author of this study, after the geographical and economic expansion of the European Union in 2004, increasing the number of categories has to be considered taking into account regions in Eastern and Central Europe; new categories could include, for example, **Traditional eastern regions, Regions with traditional industries, Traditional agricultural regions.**

Substantial diversification of the EU regions is an economic fact and it has become an important issue in Strategy Europe 2000. The European Commission<sup>7</sup> declared seven key initiatives, thanks to which 'economically-weak' regions will be given a chance to speed up their economic growth, and the economies will be able to display high employment and efficiency figures as well as greater social cohesion.

## The role of academic centres in building the regions of knowledge

Some researchers believe that the importance of a city as measured by means of giving purely the number of its inhabitants ceased to make sense long time ago. Human factor is measured rather by means of measuring human and social capital<sup>8</sup>. Nevertheless, in regional relations larger metropolitan centres dominate in every aspect since they attract resources which influence the increase in attractiveness of the whole region. Agglomerations developing their scientific, research and educational functions will become more and more important elements in social and economic structure; they will simultaneously transform into the generators of cultural, scientific and technical progress and thus accelerate the process of building regional innovation centres.

Currently the system of region management should take into consideration five key elements which determine development: competitiveness, entrepreneurship, innovativeness, managing finances and investments. As emphasized by Borowiecki, the aforementioned factors constitute the main pillars of every regional policy which should reflect the needs, particular objectives, preferences and priorities of the local society<sup>9</sup>.

Różga-Luter points out that from the point of view of global economy one can infer that the importance of the economy based on knowledge grows parallelly with the importance of regional and local economy (in author's view the phenom-

---

<sup>7</sup> Komunikat COM(2010) 2020 "EUROPA 2020 – Strategia na rzecz inteligentnego i zrównoważonego rozwoju sprzyjającego włączeniu społecznemu".

<sup>8</sup> T. Parteka, 2010, *Miasta wiedzy w kreowaniu konkurencyjności i spójności terytorialnej*, Zarządzanie Publiczne 1(11), s. 32.

<sup>9</sup> R. Borowiecki, 2010, *Zarządzanie w regionie wobec wyzwań współczesnej gospodarki, maszynopis*, Kraków, s. 89.

enon sometimes referred to as the paradox of globalization)<sup>10</sup>. Presence of higher education which contributes to noticeable and lasting socio-economic modernisation is of absolutely crucial importance for both global and regional development<sup>11</sup>. Educated society forms human capital which influences the realization of economic objectives as well as basic human rights and objectives for human development<sup>12</sup>. In the contemporary economy, the function of the institutions of higher education boils down to not only educating future specialists and stimulating the transfer of scientific solutions from the field of science to the business sector, but also participating in projects which increase competitiveness of the region. Thanks to the knowledge-based economy the university has become an important element in the process of city and region development in which the university is based<sup>13</sup>.

The definition of competitiveness varies in the literature on the subject. It is generally understood, however, that the term describes the ability to be successful in economic rivalry. In the context of regional development the notion of competitiveness may be understood as the ability to gain a lasting advantage over other regions in the regional rivalry. According to Richter-Kaźmierska, generally speaking, the factors shaping the competitiveness of a region depend to a large extent on the potential of the region itself, active role in planning and implementation of the regional policy by regional self-government, economic policy of the state as well as the implementation of structural policy standards and the EU cohesion policy<sup>14</sup>.

In the reality of knowledge-based economy, territorial systems – countries, regions, cities, counties and communes – all have to compete similarly to business enterprises. They compete for capital, innovation capital in particular, as it creates considerable multiplier effect. In the above-mentioned context, Gorzelak and Jałowiecki have distinguished two layers of ‘competitiveness’<sup>15</sup>:

- competitiveness of firms located in a given territorial system, in the open world economy,
- competitiveness of territorial systems themselves in gaining new capital, creating new jobs and generating income, attracting highly-qualified staff capable of introducing innovations, applying new technologies, and running large corporations.

<sup>10</sup> R. Rózga Luter, 2004, *Gospodarka oparta na wiedzy a rozwój regionalny na przykładzie regionu Środkowego Meksyku*, „Studia Lokalne i Regionalne” 1(15), s. 76.

<sup>11</sup> J. Kociszewski, R. Krzemień, 2008, *Funkcjonowanie szkolnictwa wyższego w kształtowaniu kapitału ludzkiego we Wrocławiu*, [w:] *Mechanizmy i uwarunkowania budowania konkurencyjności miasta*, red. J. Słodczyk i E. Szafranek, Wydawnictwo UO, Opole, s. 98.

<sup>12</sup> K. Babuchowska, M. Gross, 2011, *Współpraca jednostek naukowych z gospodarką regionu na przykładzie UWM w Olsztynie*, publikacja internetowa dostępna na <http://www.instytut.info/Vkonf/site/1.pdf>, (stan na dzień 02.06.2011).

<sup>13</sup> A. Marszałek, 2010, *Rola uczelni w regionie*, Difin, Warszawa, s. 97.

<sup>14</sup> A. Richter-Kaźmierska, 2011, *Partnerstwo na rzecz rozwoju regionalnego a konkurencyjność regionalna*, publikacja internetowa <http://mikro.univ.szczecin.pl/bp/pdf/64/19.pdf>, (stan na dzień 02.06.2011).

<sup>15</sup> G. Gorzelak, B. Jałowiecki, 2000, *Konkurencyjność regionów*, „Studia Regionalne i Lokalne” Nr 1(1), s. 12.

Higher education plays significant role in increasing regional competitiveness. According to Szczepańska-Woszczyzna the role of the institutions of higher education in regional development may be realized in several aspects such as<sup>16</sup>:

- creating soft factors thanks to introducing highly-qualified staff,
- adjusting educational offer to the needs of the region,
- creating research and educational centres.

The above-mentioned activities performed by universities and scientific research institutions contribute greatly to making a given region more competitive since the soft management factors are the most significant for the development of contemporary economy, especially the knowledge resources and qualifications of the employees<sup>17</sup>.

The cooperation between universities, institutions of higher learning and schools of various profiles is especially important on the regional level since it contributes to the increase of human and social potential in this region. Certain areas with specific conditions qualify them into the category of 'learning' regions. Some characteristic features of such regions include:

- presence of prestigious university or reputable research centre,
- presence of a large number of companies involved in innovative activities,
- maintaining competitive position of the region, creating new jobs, offering competitive salary,
- the ability to attract investments,
- creating conditions for importing highly-qualified employees,
- creating suitable conditions for pro-development orientation of the region through,
- identifying professional career and social advancement paths of region inhabitants,
- building and reinforcing the importance of the region through creating competitive advantage over other universities, cities and regional businesses,
- building a network of relations between university and the business sector, rising number of entrepreneurial activities among students and academic,
- building good name of the region.
- In a 'learning' region the scope of activities of universities and other institutions of higher education is very wide. Academic offer is addressed to all social groups (adolescents, adults as well as pensioners) and all business entities. It results from the fact that the university, apart from its educational offer, is ready to share its research results with the business sector. There is a noticeable transformation in the concept of the mission of the university: it is becoming oriented also on the needs of economy. Consequently, the concept of knowledge-based economy encourages university authorities, academic staff and stu-

<sup>16</sup> K. Szczepańska-Woszczyzna, 2011, *Rola edukacji w rozwoju regionu*, publikacja internetowa dostępna [http://www.sbc.org.pl/Content/4196/rola\\_edukacji\\_szczepans.pdf](http://www.sbc.org.pl/Content/4196/rola_edukacji_szczepans.pdf), (stan na dzień 02.06.2011).

<sup>17</sup> R. Borowiecki, Z. Olesiński, 2010, *Kreowanie regionu wiedzy*, maszynopis, Kraków.

dents to search for new ways of knowledge management and project-oriented thinking. (see Table 3).

Table 2: University in a learning region

1.	Scientific activities and explorations aimed at finding new solutions, inventions and patents. Cooperation with economy. Development and presentation of economy-commissioned research, implementation of results with a view to improving the efficiency of business enterprises, cities and regions.
2.	Design and offer of courses, seminars and workshops tailored to the needs of the region's inhabitants in order to improve the quality of human and social resources.
3.	Management and evaluation of innovative projects important for the economy of modern regions, their implementation at the local and national level.
4.	Development of examples of good models to be followed for the regional business entities, development of practice standards for local authorities in relation to local communities, investors and regional business entities.
5.	Analysis of the quality of education in the context of the needs of the global economy and regional competitiveness in the UE
6.	Development of training programmes in counseling and mentoring for people employed in local self-government administration.
7.	Development of the strategy of internal regional network relations with the outer environment through efficient use of electronic networks, the Internet.
8.	Development of life-long educational strategies for employees and inhabitants.
9.	Development of didactic and informational materials specifying the forms of continuing education offered in the region.
10.	Creation of network relations with other cities, regions with a view to building a system of partnership relations of counties, cities, universities, schools, and companies.
11.	Development of educational possibilities for inhabitants of the region
12.	Offer of a wide range of educational possibilities in the form of B.A., M.A. and Ph.D studies
13.	Encouraging and motivating the inhabitants to develop their education in post-graduate studies, conduct scientific research, learn foreign languages, and get involved in other forms of education offered by universities of the third age.

Source: based on N. Longworth, 2006, *Learning Cities, Learning Regions, Learning Communities. Lifelong Learning and Local Government*, Routledge, London and New York, s. 122.

The activities of universities outlined in the above table are an example of initiatives undertaken by academic centres with a view to enhancing competitiveness of regions. On the one hand, the above-listed actions are in line with the concept of knowledge-based economy, on the other hand, they enable academic institutions to develop. Those academic centres which reform their development strategies become part of the management-through-innovation process and put forward their own solutions to problems which affect the economy, will be able

to both compete with other European universities and solidify their position on the competitive market of educational services.

To sum up our considerations up to this point, it is worth adding that the impact of academic centres on competitiveness of the region displays itself chiefly through the realization of basic responsibilities of higher education, i.e. teaching and research. The mission of higher education is creating (discovering) new knowledge, which is then passed down to those interested in acquiring it. In knowledge-based economy a special role is assigned to those who have special knowledge, qualifications and skills. By equipping students with appropriate qualifications, academic centres enhance the quality of human resources in the region, as well as satisfy the needs and expectations of social and economic environment. Global rivalry is conducive to the restructuring of academic institutions and system of education. The scope of activities undertaken by academic centres is changing. Universities do not limit themselves to teaching only, since more and more often they conduct research projects destined for industry or projects commissioned by business enterprises; in this way they are beginning to cooperate with institutions and become engaged in new forms of activity.

## Summary

Regional management under the conditions of international competition in Poland is a difficult task due to the lack of experience or tradition of local self-governments. Exposed to the influence of new trends in regional management, we adopt models not tested in our conditions.

The newest concept of regional development is the development based on knowledge. This concept has proved effective in the areas and countries with an advanced level of economic structures and long tradition of economy based on the absorption and knowledge transfer between an enterprise and science.

Long tradition of network links within regional economy in the countries of Old UE shows that economy founded on knowledge works successfully and the regions implementing such a model of management develop faster than the ones leaning on other models of management.

## References

- Acs Z.J., (red), 1999, *Regional Innovation, Knowledge and Global Change*, Pinter, London and New York 2000; J. Heijs, U. Bross, What can regional policy learn from the innovation systems approach – with a case study from Spain and Germany. Draft Version, San Sebastian.
- Babuchowska K., Gross M., 2011, *Współpraca jednostek naukowych z gospodarka regionu na przykładzie UWM w Olsztynie*, publikacja internetowa dostępna na <http://www.instytut.info/Vkonf/site/1.pdf>, (stan na dzień 02.06.2011).

- Borowiec M., 2008, *Konkurencyjność przestrzenna uczelni jako elementów struktury centrów układu bipolarnego Kraków – Rzeszów*, [w:] *Mechanizmy i uwarunkowania budowania konkurencyjności miasta*, red. J. Słodczyk i E. Szafranek, Wyd. UO, Opole.
- Borowiecki R., 2010, *Zarządzanie w regionie wobec wyzwań współczesnej gospodarki*, maszynopis, Kraków.
- Domański R., 2012, *Ewolucyjna gospodarka przestrzenna*, Wyd. UE w Poznaniu.
- Gibbons M., Limoges C., Nowotny H., Schwartzman S., Scott P., Trow M., 1994, *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*, Londyn: SAGE Publications.
- Gorzela G., Jałowiecki B., 2000, *Konkurencyjność regionów*, „Studia Regionalne i Lokalne” Nr 1(1).
- Korenik S., 2007, *Budowa Gospodarki Opartej na Wiedzy w przekroju regionów jako wyzwanie dla procesów integracji krajów UE*, [w:] *Innowacyjny jednolity rynek – wyzwaniem dla wymiaru gospodarczego UE*, Warszawa, Urząd Komitetu Integracji Europejskiej.
- Makiela Z., 2012, *Innowacyjne miasto, innowacyjny region*, [w:] *Miasto innowacyjne, wiedza, przedsiębiorczość, marketing*, (red.) Z. Makiela, A. Szromnik, Studia KPZK PAN, T. CXLI, Warszawa.
- Makiela Z., 2013, *Transport Management In the Innovative City*, [w:] *Contemporary Economies In the Face of New Challenges, Economic, Social and Legal Aspects*, Cracow Cracow. University of Economics, Department of Economics and Organization of Enterprises, Foundation of the Cracow University of Economics, edited by R. Borowiecki, A. Jaki, T. Rojek, UE Kraków.
- Maskel P. (red.), 1998, *Competitiveness, Localised Learning and Regional Development: Specialisation and Prosperity in Small Open Economic*, Routledge, London.
- Mikuła B., 2006, *Organizacje oparte na wiedzy*, „Zeszyty Naukowe Akademii Ekonomicznej” nr 173, Kraków.
- Morgan K., 1997, *The learning regions: institutions, innovatin and regional renoval*, „Regional Studies”, No. 31.
- Parteka T., 2010, *Miasta wiedzy w kreowaniu konkurencyjności i spójności terytorialnej*, „Zarządzanie Publiczne” nr 1(11).
- Porter M.E., 2001, *Porter o konkurencji*, Polskie Wydawnictwo Ekonomiczne, Warszawa.
- Richter-Kaźmierska A., 2011, *Partnerstwo na rzecz rozwoju regionalnego a konkurencyjność regionalna*, publikacja internetowa <http://mikro.univ.szczecin.pl/bp/pdf/64/19.pdf>, (stan na dzień 02.06.2011).
- Różga Luter R., 2004, *Gospodarka oparta na wiedzy a rozwój regionalny na przykładzie regionu Środkowego Meksyku*, „Studia Lokalne i Regionalne” nr 1(15).
- Świtalski W., 2005, *Innowacje i konkurencyjność*, Wydawnictwo Uniwersytetu Warszawskiego, Warszawa.