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## **The modernization of the economy of a poorly developed region through the construction of the Knowledge-Based Economy on the example of the Lublin Region in Eastern Poland (2006-2020/2030)**

### **Abstract**

One of the primary objectives of economic policy of regional governments is to stimulate the development of the region and to overcome its development backwardness. In modern times this task is extremely difficult because of the development conditions shaped by globalization and the associated race of states and regions for the greatest innovativeness and competitiveness. A recipe for the economic development of the regions in the modern world is to build an innovative and competitive regional knowledge-based economy. The "new economy" is a great chance for underdeveloped regions, because it can compensate their natural development limitations connected, among others, with the unfavourable location, the lack of developed industry and a poor resource base. The goal of the author of the study is to present the priorities of modern development policy of an underdeveloped region, the authorities of which have decided to choose a path of development involving the construction of the regional knowledge-based economy, on the example of the region of Lublin in Poland, which is one of underdeveloped European regions.

**Keywords:** knowledge-based economy, Cohesion Policy of the European Union, European Union funds, regional development, local governments, poorly developed regions, Eastern Poland.

### **Introduction**

Serious disparities between countries and regions of the European Communities (EC) and the European Union (EU) are one of the largest and also the most difficult to overcome barriers in the process of European integration. In order to limit and gradually eliminate it, European countries for nearly half a century have been using the solutions offered by Cohesion Policy (CP), one of the main Community policies aimed at bridging development gaps within the Community. Despite the gradual improvement of this policy and its

increasingly better adaptation to changing social, political and economic conditions in which the Member States of the Community operate, the EU is still a highly diversified group in terms of the socio-economic development. The disparities within the Community deepened with the accession of additional Member States, usually less developed than the founding states, which was a natural consequence of the process of European integration. An important moment in the history of the EC, the EU and CP of interest to us was the fifth EU enlargement by Central European countries from 2004/2007, as a result of which the Community grew in a short time by as many as 12 new Member States.<sup>1</sup> What is also important is the fact that the new EU members were in the large part the countries which had had only recently entered the path of democracy and conducted a spectacular economic transformation building a system of the free market economy from scratch after the disastrous consequences of the experiment with the centrally controlled socialist economy. The new EU Member States, which we point here, also formed a heterogeneous group, varied in terms of their potential and the socio-economic development level. Among them there were and still are states and regions whose development level is significantly different from other EU countries and regions, as exemplified by the countries such as Bulgaria or Romania. In the group of the least developed regions of the Community there is the majority of Polish regions, including lagging regions of Eastern Poland (EP) with the region of Lublin which is of particular interest to the author of the study.

Today the underdeveloped regions of the EU are facing challenges connected with overcoming their development backwardness in difficult and demanding conditions posed by globalization, and especially the race for greater innovativeness and competitiveness of the economy. One of the main roads to overcome developmental backwardness of underdeveloped regions is the modernization of their economies going towards building the modern and competitive knowledge-based economy (KBE). The "new economy" is a great chance for those regions, because it can compensate their natural development limitations connected, among others, with the unfavourable location, the lack of developed industry and a poor resource base, allowing for the efficient use of possessed capital, e.g. human capital, in other areas where their development will be possible.

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<sup>1</sup> Cyprus, the Czech Republic, Estonia, Lithuania, Latvia, Malta, Poland, Slovakia, Slovenia and Hungary since 1 May 2004, and Bulgaria and Romania since 1 January 2007. Serious concerns about such a large, one-time enlargement of the European Union were expressed by many countries of the Community, especially those with a shorter membership period, for example, Spain or Portugal, which feared competition of the new members in the use of Community aid.

The aim of the study is to present the development policy priorities for underdeveloped areas taking the path of economic modernization connected with the development of the regional KBE on the example of one of the least developed regions of the EU, that is Lublin province in Poland. The author of the study conducted an analysis of key strategic documents produced by government bodies of Lublin province and other related entities, paying particular attention to the two latest development strategies of Lublin province – the Lublin Province Development Strategy for the years 2006 – 2020 (LPDS 2020) and the Lublin Province Development Strategy for the years 2014 - 2020: with a 2030 perspective (LPDS 2030) and the Regional Innovation Strategy of Lublin Province to 2020 (RISLP 2020). They are the foundations of new economic policy implemented by the authorities of the region.

The basis for the theoretical and analytical work were primarily documents of the regional government of Lublin, Community documents and national and foreign studies on the KBE and regional development, the selection of which appears in the bibliography.

### **1. The knowledge-based economy and its regional aspects**

The development of the KBE is an interesting and important trend in modern socio-economic changes, to which more and more publications are devoted.<sup>2</sup> Both the subject and the limited volume of the study do not allow for an extensive presentation of this issue, but it seems necessary to present the objectives of the "new economy" and present its significance for the development of regions, especially regions lagging behind in development.

The emergence of the new orientation of the economy, today called the KBE, is one of the most interesting phenomena which we can observe in the contemporary socio-economic space. The KBE is a momentous in its implications reorientation of the economy, which manifests itself in the gradual transition from the material consuming economy to the economy based on information and knowledge. As a result of this process, as economists believe, the previous competition of countries and regions through material resources is replaced by the competition through non-material resources, and more specifically through knowledge and innovative products. The term Knowledge-Based Economy<sup>3</sup> is connected with the emergence of the information society, to which attention was directed in the second half of the 60s of the twentieth century. Described by American sociologist and futurologist Alvin

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<sup>2</sup> See selected items of KBE in the Bibliography.

<sup>3</sup> Other terms for the KBE are: new economy, knowledge driven economy, digital economy, network economy, e-economy.

Toffler (1928-)<sup>4</sup>, the creator of the famous technological wave theory, the so-called "third wave" currently represents the post-industrial economy, in which information, knowledge and all that man is able to attain thanks to them using his intellect are essential. The changes noted by Toffler were a result of the technological revolution of the 60s and 70s of the twentieth century and information technology, the worldwide internet network arising in its effect and the formation of the global economy based on the achievements of modern science, especially of technical sciences. As noted by Daniel Bell, eminent American sociologist (1919-2011), in the modern world "[...] knowledge and information have become a source of the strategy and transformation of society, that is the same as capital and labour in industrial society"<sup>5</sup>.

The breakthrough associated with the transition to a new type of economy, observed today in various parts of the world, is a fundamental change. At an earlier stage, the factors determining socio-economic development were raw materials, labour (the cheapest), developed technical infrastructure, good organization and well-functioning transportation. Economics, as experts believe, focused on describing and improving the processing of certain tangible goods into new material goods. Currently, in times of the spreading knowledge-based economy, which is based on knowledge and innovation, these factors of economic development still count, but they slowly lose their importance giving place to new factors of development, which are mainly highly skilled workers, as well as universities and research centres, IT infrastructure, and created by central and regional authorities conditions conducive to the development of the modern, technologically advanced economy.<sup>6</sup>

Bearing in mind the vital importance of knowledge for the development of regional economies, special attention should be paid to innovative knowledge leading to the emergence of innovations which form the basis for the "new economy". According to Joseph Alois Schumpeter (1883-1950) innovations are a function consisting of creative thinking and action of man.<sup>7</sup> In the context of changes in the modern socio-economic sphere and the

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<sup>4</sup> A. Toffler, *Trzecia Fala*, Warszawa: Państwowy Instytut Wydawniczy 1997.

<sup>5</sup> Cited in: *Przegląd Zagranicznej Literatury Prognostycznej*. Seria Komitetu Polskiej Akademii Nauk, Wrocław – Warszawa, 2 X 1983.

<sup>6</sup> As Antoni Kuklinski, prominent Polish economist and expert in the knowledge-based economy, believed, the transition to the "new economy" manifests itself, among others in increasing the competitive advantage of countries and regions specializing in the manufacturing of highly processed and technologically advanced products.

<sup>7</sup> Innovations are a result of collected information and knowledge created on its basis, then used in a practical way. We can differentiate the following kinds of innovations: technical, technological, marketing and organizational. Innovation is also a learning process, in which both individual companies, society, including regions that can accumulate knowledge and decide on its use, participate. The development of innovations is also influenced not only by technological progress, but also by changing expectations of consumers of goods and services and competition in the market (see F. Krawiec, *Zarządzanie projektem innowacyjnym produktu i usługi*, Warszawa: Diffin 2000, p. 22. ).

emergence of the KBE, it does not concern a simple understanding of innovation, i.e. the launch of new consumer products, the development of new methods of production, the opening of new sales and supply markets or the introduction of new, more perfect forms of organization<sup>8</sup>. In the context of the KBE the most important issue is that innovativeness overwhelmingly affects and ultimately shapes the regional economic sphere. In the region innovations initiate a process which is important for its development, and which consists of not only the final result (e.g. a particular product or organizational innovation), but also any actions preceding the creation of the specific innovation, i.e. the idea/concept, R & D and design works, manufacturing, marketing and the spreading of the innovation. Therefore, today we are talking about a dynamic innovation process, which can be described as "[...] a string of interactions from the emergence of the innovation idea to its implementation and dissemination, the aim of which is a product, technological, organizational and social change. This process is characterized by a new way of applying science and technology, ensuring a market success"<sup>9</sup>. This process is of key importance for the socio-economic development of those regions which have chosen the path of modernization connected with the KBE.<sup>10</sup>

Writing about the importance of innovations for the development of the KBE and the regions which follow the "new economy" modernization path, it should be emphasized that technical innovations (process and product ones), especially innovations related to ICT, are of particular importance for the development of the regional KBE. As for the latter, they initiated new branches of the economy and related services, bringing companies using them measurable benefits and competitive advantage in the market, and consequently also the economic development of regions and the improvement of their competitiveness. The innovation and technological progress and changes it causes in the regional economy emphasize the key importance of science for economic development, and especially of technical sciences. We cannot forget that the source of innovation is scientific knowledge created in universities of the region. As experts note, the progress in technological research requires a high level of basic and applied research.<sup>11</sup>

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<sup>8</sup> See J. A. Schumpeter, *The Theory of Economic Development*, Cambridge: Harvard University Press 1934.

<sup>9</sup> See E. Szal, U. Zdania, *Innowacyjność w regionalnej Gospodarce Opartej na Wiedzy*. [In:] M. Czerniejewska-Rutkowska, E. Karasiński (eds.) *Innowacyjność oknem na świat*, Łódź: Łódzkie Towarzystwo Naukowe 2004, p. 101.

<sup>10</sup> Of particular importance for the economic development of Polish regions, especially underdeveloped regions, are technical innovations (process and product ones), mainly in the area of ICT.

<sup>11</sup> The impact of technological knowledge on the innovation progress raises legitimate objections of economists who point to the negative effects of inappropriately organized research and implementation activity, the decreasing efficiency of the linear model of knowledge production and its use for technological purposes and the increasing importance of political factors during the transfer of technological knowledge (Z. Chojnicki, T. Czyż,

It should also be borne in mind that the use of knowledge, even innovative knowledge, in the process of stimulating the region's economic development does not lead in a simple way to the creation of the regional KBE. The economy of this type has the chance to emerge only when "the use of innovative knowledge leads to achieving increasing market successes and economic benefits in these sectors of the economy in which they are dependent on the absorption of technological progress and which become more relevant."<sup>12</sup> The effective utilization of knowledge in the construction of the KBE occurs primarily through regional innovation systems, that is a specially built network of institutions of different types, which are able to transfer knowledge to both the economic sphere, as well as its social and institutional environment. An extremely important role in providing knowledge needed for the development of the regional KBE, especially innovative knowledge, is played by foreign capital and related investments which are located in the area of developing regions. The inflow of this type of capital, especially technologically intensive capital, generates revenues of the region, has a positive effect on the modernization of its economic structures and stimulates economic growth, which is very beneficial for the development of the KBE.<sup>13</sup> It should be recalled that the economic development associated with the construction of the "new economy" slowly translates also into the significant improvement of the affluence and living conditions of the inhabitants of the region, which is particularly important in the case of disadvantaged areas.

The crucial importance of science and specialist knowledge for the economic development of countries and regions does not raise any doubts today and meaningfully demonstrates that traditional economic factors such as natural resources, labour and capital have been substituted in the twenty-first century by knowledge, which has become the main source of wealth and the basis of progress. "Knowledge, however, is more than just the next critical factor of production. From an economic perspective, it has two roles: it is a source of renewal and is also the glue that binds and co-ordinates other factors of production".<sup>14</sup> The importance of knowledge for economic development also stems from the fact that its resources are in practice inexhaustible, and that it is characterized by the dynamics of

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*Aspekty regionalne gospodarki opartej na wiedzy. Podejście regionalne*, "Przegląd Geograficzny", vol. 75, no. 1(2003), p. 14.

<sup>12</sup> Z. Chojnicki, T. Czyż, *Aspekty regionalne...*, p. 28.

<sup>13</sup> See T. Pakulska, *Podatność innowacyjna Polski na napływ zagranicznego kapitału technologicznie intensywnego*, Warszawa: Szkoła Główna Handlowa w Warszawie 2005, pp. 7-8.

<sup>14</sup> P. Schwarz, E. Kelly, N. Boyer, *The Emerging Global Knowledge Economy*, [In:] *The Future of the Global Economy -Towards a Long Boom?*, Paris: OECD, p. 80.

increasing returns, unlike in the case of traditional economic factors.<sup>15</sup> The providers of knowledge are primarily scientists affiliated with universities and research and implementing institutions. For this reason, what is important is the proper funding of scientific research activities by the state and business entities. Its location plays today an important role in the economic development of regions. As economists believe, the pace of development of the regional economy is largely a function of increasing outlays on education, research and development and innovations.<sup>16</sup>

The regional KBE cannot be built without high-quality human resources and modern education keeping pace with changes in the socio-economic sphere. Noting the quality of human resources we have in mind the individuals with both knowledge and skills useful for enterprises and institutions of the region. These people should be properly educated by regional educational institutions, especially the universities of the region. How should we understand such education? It concerns mainly the education meeting the needs of the contemporary state and its economy, necessarily taking into account the use of ICTs, sensitive for the need for self-education (also "learning how to learn"), including lifelong learning, making citizens aware of the transformation of the contemporary socio-economic sphere and the reorientation of the modern economy (KBE). An important aim of the education understood in this way is encouraging the public to actively participate in the transformation of the regional socio-economic sphere. Regional educational institutions at all levels, and especially at the academic level, must meet these and other goals of the modern education system, since academic knowledge, scientific knowledge is now a major source of innovation, on which the "new economy" is based. Academic education is "a basic process creating human capital and determining the effectiveness of its impact on changes of the structure and development of the economy and the formation of the KBE (...)".<sup>17</sup> The possession, and skilful management of high-quality human resources is one of the most important assets of the region, especially underdeveloped region, as long as it has such resources. Thanks to human capital, region local authorities can influence the development of the region and build a modern and competitive regional economy.

The most important determinants of the KBE include human capital, scientific research institutions and educational institutions, financial and crediting institutions, innovativeness and ITC infrastructure. The last of the identified determinants of the "new economy",

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<sup>15</sup> Ibidem, p. 85.

<sup>16</sup> See Z. Chojnicki, T. Czyż, *Aspekty regionalne...*

<sup>17</sup> Ibidem, p. 16.

connected with information and communications technologies, is especially important. ICTs have enabled the unlimited exchange of information and knowledge constituting a basis of contemporary social and economic changes. It should be emphasized that these determinants of the KBE interact with one another and, depending on their condition, contribute to a lesser or greater extent to the development of the "new economy". Since the beginning of the 90s of the twentieth century a unique role in ICT infrastructure has been played by the Internet, which has allowed widespread and unrestricted exchange of data, information and knowledge, radically improving communication, and at the same time dramatically reducing the costs and time associated with it. It has intensified the flow of information, knowledge and contacts both between people but also between scientific research and implementing institutions, which constitute a forge of ideas for the "new economy". For this reason, the Internet has quickly become one of the main forces initiating and supporting the contemporary changes of the socio-economic sphere and the driving force of the KBE<sup>18</sup>.

According to economists, there is an unquestionable relationship between the degree of economic development of countries and regions, and the advancement of the KBE.<sup>19</sup> In highly economically developed regions, we see the well-developed KBE growing out of the manufacturing and services sectors, which are based on modern technologies, especially ICTs and innovations, engaging at the same time highly qualified human resources. In such areas there are usually also organizational and institutional conditions which are conducive to the development of the modern and competitive economy, and which are created by central and regional authorities aware of the importance of the occurring changes. These regions manage well in the rapidly changing conditions brought about by globalization. In contrast, regions lagging behind in development, such as regions of Eastern Poland which are of interested to us, are characterized by a low level of economic development and difficulties in the construction of the "new economy". There are many reasons for this state of affairs, but the development of the KBE is the only real chance for these regions to get rid of development backwardness and to achieve a leap forward in civilisation.<sup>20</sup> The possibilities of building the

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<sup>18</sup> A sign of the formed regional KBE is, according to economists, recorded economic growth of the regional economy in which outlays on research and development and the sphere of education grow faster than investment in fixed assets or the achievement of 50-60% share of total productivity factor (TPF) in the growth of GDP, which, however, we encounter only in the most developed and competitive regions in the world. (W. M. Gaczek, *Gospodarka oparta na wiedzy w regionach europejskich (Knowledge-based Economy in the European Regions)*, Studia Komitetu Przestrzennego Zagospodarowania Kraju, vol. CXVIII, Warszawa 2009, p. 27).

<sup>19</sup> See K. Porwit, *Cechy gospodarki opartej na wiedzy (G.O.W.), ich współczesne znaczenie i warunki skuteczności*, [In:] A. Kukliński (ed.) *Gospodarka oparta na wiedzy. Wyzwanie dla Polski XXI wieku*, Warszawa: Komitet Badań Naukowych 2001, p. 111 ff.

<sup>20</sup> Cf. Z. Chojnacki, T. Czyż, *Aspekty regionalne....*, p. 22.

regional KBE are undoubtedly conditioned by the specificity and potential of the region. Not every region will be an area where there are favourable conditions for the construction of the new type of economy based on innovation. The best conditions for building the KBE will occur in regions which are already developed and competitive. A competitive region is in fact a region which "[...] is able to adapt to changing conditions more rapidly than other regions, thereby achieving improvement of its position in the competition among regions".<sup>21</sup> Ultimately, these regions, which are able to properly use their human resources and knowledge provided by universities will have the greatest chances to build the regional KBE. Polish underdeveloped eastern provinces, including the region of Lublin, now have the unique opportunity to catch up in the key development areas and catch up with the averagely developed EU regions in the long-term, which in their case will be a major achievement. This goal will be achievable for the specified group of regions, provided that they are able to optimally utilize their resources, especially human resources and knowledge resources and consistently follow the path of development which is set by the KBE.

## **2. Development disparities within the European Union**

According to the latest statistical data of the EU's statistical agency, Eurostat, presented in February 2014<sup>22</sup>, development disparities between the most and least developed countries and regions of the Community are still enormous. This situation gives rise to legitimate concerns of the EU executive bodies responsible for the implementation of CP, as well as of the authorities of the Member States of the Community, especially of the less developed countries. Development disparities within the EU are portrayed mostly with the help of Gross Domestic Product (GDP) which expresses the aggregate value of final goods and services produced in a given area within a specified period of time. According to the Eurostat data, at the top of the ranking of European regions are regions in which GDP per capita is close to or exceeds 300% the EU average as it is in the case of, for example, the City of London (Inner London, 321%) and Luxembourg (266%). At the opposite side of the ranking there are regions whose GDP per capita amounts to approximately only 40% of the Community average, and at the end of the list there are regions with 29% of the Community average, as it

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<sup>21</sup> W. M. Gaczek, Z. Rykiel, *Konkurencyjność regionów a regionalizm ekonomiczny*, [In:] *Polityka regionalna i jej rola w podwyższaniu konkurencyjności regionów*, M. Klamut, L. Cybulski (eds.), Wrocław: Wydawnictwo Akademii Ekonomicznej im. Oskara Langego 2000, p. 42.

<sup>22</sup> It concerns the compiled data from 2011. See *GDP per capita in the EU in 2011: seven capital regions among the ten most prosperous*, Eurostat Newsrelease 29(2014), 27 February 2014.

is in the case of the Romanian North-Eastern Region and Bulgarian Northwest Region<sup>23</sup>. Counteracting maintaining or, worse, deepening of such large disparities in the EU is one of the most important objectives of the Community Cohesion Policy (CP), including the recent development strategies of the Community assuming catching up by the EU and its regions with the level of development of the largest economic and technological powers of the modern world. These ambitious targets formulated at the European Council summit in Lisbon in 2000 are reflected in the Lisbon Strategy (LS, the renewed Lisbon Strategy since 2005), miserably realized in 2000-2010, as well as in the current development strategy of the EU "Europe 2020".

The expansion of the gap between the EU Member States of the most developed countries in the world such as the United States, Japan and the rapidly developing countries of the Far East (so-called Asian tigers) started to be clearly visible at the end of the 90s of the twentieth century. The economic and technological development of the indicated powers, especially the United States, took place quite unexpectedly due to the acceleration of the economic and technological development caused by the rapid spreading of a new type of economy based on knowledge, particularly on ICTs related to the rapidly growing computer industry. The LS, proposed by the EU leaders at the Intergovernmental Conference in Lisbon, was a response to new trends in the economy valuing knowledge, human and intellectual potential and ICTs affecting the rate of transfer of information and knowledge. The ambitious, and as it quickly appeared too difficult to achieve, objectives of the LS made EU decision-makers realize that winning and maintaining the Community position as the world economic and technological leader would be a great challenge for its Member States. Of course, this objective cannot be achieved without harmonious development of the whole Community and its regions. A way to greater innovativeness and competitiveness of the EU and its Member States is widely understood modernization of the socio-economic sphere for which the most important is the creation of a modern and competitive KBE in the regions of the Community.

The Euro-region Euregio is a good example of the successful modernization of the socio-economic sphere and civilizational advancement of a retarded European region. It was created in 1958 and was the first cross-border agreement between cities, counties and municipalities covering the area in the vicinity of the cities of Münster and Emschede in Germany and the

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<sup>23</sup> 44% in the case of Lublin province of interest to us (increase by 10 percentage points since Polish accession to the EU and comparing GDP per capita of Lublin region at the level of 34.5% in 2003).

Netherlands.<sup>24</sup> The reason for the creation of the indicated Euro-region and starting modernization of its socio-economic sphere were social and structural problems occurring in this area. They resulted from the underdeveloped economic structure of the region (traditional textile industry) with dominant agriculture. Paradoxically, this cooperation between Dutch and German local governments was also facilitated by the development problems and the resulting social problems. We have here in mind primarily the poverty of society in the area of interest to us at the time when the Euro-region was established, including a deficit of jobs connected with high unemployment. The Euro-region has become an example not only of exemplary integration of societies within the European Communities, but also of fruitful economic cooperation, and above all of successful restructuring of the regional economy.<sup>25</sup> The region with a modern, highly innovative and competitive economy was built on the basis of the consequently enlarged economic infrastructure in the region over the decades.

Euregio can be a model for other regions, especially regions lagging behind, in terms of the effective transfer of scientific knowledge, innovative knowledge, to companies in the region, which can thus be successful in both regional and international markets. In the case of the Euro-region of interest to us, technologically advanced, innovative products which successfully competed in the markets were the keys to its success. Currently Euregio associates together more than 140 municipalities, cities and counties inhabited by nearly 3.5 million people and bears no resemblance to the cross-border self-government association of the late 50s and 60s of the previous century.

### **3. Contemporary conditions of the development of Lublin province**

Regions of Eastern Poland, including the region of Lublin of special interest to us, are classified as underdeveloped regions, which are characterized by both low economic indicators, as well as similar problems and constraints of development. According to Eurostat, Polish eastern provinces, despite the progress made by their governments in recent years in the modernization of the regional socio-economic sphere, especially in connection with Polish

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<sup>24</sup> EUREGIO covered the area located on the German-Dutch border, between the rivers Rhine, Ems and Rijn. Soon after that next Euro-regions were created: Rhein-Waal (1963), Mass-Rhein (1976), in pursuit of the same goal, i.e. the removal of barriers resulting from the existence of borders between countries and strengthening of economic cooperation between European regions.

<sup>25</sup> The EUREGIO Association brought to life common, cross-border institutions: the Regional Assembly - Euregio Council, the Bureau and the Secretariat to act as executive bodies, joint thematic working groups and committees for economy, transport, social welfare, agriculture, technology, spatial order, education, sport and culture, and tourism. It was also necessary to establish a new organization system in regional institutions and to develop new mechanisms of cooperation.

accession to the EU and implementation of Community CP, are still in the group of the least developed regions of the Community. These regions have very limited chances for a fundamental change of their situation, namely to effectively reduce the gap separating them from developed regions.<sup>26</sup>

The region of Lublin traditionally ranks at the end of the ranking of EU regions having one of the lowest GDP per capita in the Community (currently 44%), forcing its local government to undertake modernization actions aimed at improving efficiency, innovativeness and competitiveness of the economy of Lublin province. Lublin province is a typical example of a disadvantaged region not only because of low economic indicators, but also because of related problems faced by local authorities of the region, local businesses, and its inhabitants. It requires a profound transformation of the socio-economic sphere and the construction of the innovative and competitive KBE.

At the time of the adoption of the new development strategy of Lublin province corresponding to the conditions and challenges of Polish membership in the EU, which took place in the first decade of the twenty first century, the social and economic situation in the region did not inspire with optimism. After Polish accession to the EU (2004) the province instantly ranked at the very bottom of the ranking of European regions with the lowest GDP. The conditions and diagnosis of the initial state of the newly prepared Lublin Province Development Strategy for the years 2006 – 2020 (LPDS 2020)<sup>27</sup> pointed out a few strengths and many weaknesses of the region which are fundamental to the modernization of its socio-economic sphere. Among few strengths of the region, conducive to the construction of the regional KBE, the following were enumerated: increasing use of information technology in enterprises of the region, relatively well-developed and diverse potential of the regional scientific research base encompassing independent research institutes and universities (with rich resources of young and well-educated academic personnel), the positive attitude of entrepreneurs to innovations (with considerable independence in their funding), and the existence of the seeds of an institutional system for the transfer of knowledge and the promotion of innovative solutions in enterprises (Lublin Science and Technology Park, industrial parks, Innovation Transfer Centre, or Lublin Capital Fund).<sup>28</sup> According to the

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<sup>26</sup> At the moment of Polish accession to the EU in 2004 Lublin province, together with Subcarpathian province, was classified as the least developed region in the Community (35% of the EU average GDP per capita). After 10 years of Polish membership in the Community, the situation in the Lublin region has improved significantly, as shown by the latest statistics from Eurostat. See Eurostat Newsrelease 29(2014).

<sup>27</sup> See *Strategia Rozwoju Województwa Lubelskiego na lata 2006–2020*, Lublin: Zarząd Województwa Lubelskiego 2005, vol. II (Objectives and priorities of the strategy and the implementation system), pp. 7-18.

<sup>28</sup> *Ibidem*, vol. I, pp. 56-57.

authors of the LPDS 2020, these were insufficient foundations for the planned modernization of Lublin province, which showed what great tasks will be faced by the local government and society in the coming decades.

The authors of the LPDS 2020 drew attention to a number of instances of developmental backwardness of Lublin province influencing its development potential and hindering the modernization of the regional economy, i.e.:

—unfavourable economic structure of the region with the dominance of traditional sectors, particularly obsolete agriculture and a small share of sectors of high and medium-high technology in manufacturing and services, with a dominant share of less processed and traditional products in export;

—low level of innovation and technological gap in the manufacturing sphere of companies in the region in comparison with the global level, and the low level of advancement of new technologies and of technical progress implementation;

—low product and technological competitiveness of enterprises combined with their relatively low level of innovation;

—unfavourable employment structure and too large share of the agricultural sector in the employment structure and a small share of the service sector, including market services in the creation of gross value added;

—underdevelopment of broadband ICT infrastructure resulting in the limited use of the Internet;

—maladjustment of the offer of the research and development sector to the demand for innovation;

—state and development of business environment institutions, especially in smaller towns and in the countryside, insufficient in comparison with the needs;

—low competitiveness of the region and a low share of direct foreign investments on its territory;

—slow pace of economic restructuring and the limited ability of entities to co-finance economic projects with EU funds;

—low quality of management and insufficient number of quality certificates in enterprises;

—shortage of equity in companies linked to the difficult access to external financing,

and including what is especially important for the innovativeness of the economy of Lublin province:

—low level of funding for research and development in the region in relation to GDP and per person employed in the R & D sector;

- high degree of wear of scientific and research equipment in research and development units in the region;
- insufficient development of knowledge transfer infrastructure and commercialization of the results of research and development<sup>29</sup>.

The above overview of the weaknesses of Lublin province drew a pessimistic picture of the situation in the region and showed the challenges which the local authorities of the region had to face when adopting the LPDS 2020. This was particularly important in the context of Polish newly acquired membership in the EU, the guidelines for the Community CP and the possibilities given by the EU system of structural support. New economic policy, adopted by the local government of Lublin province, aimed at the modernization of the regional socio-economic sphere, consistent with the assumptions of the KBE, gave the Lublin region a real chance to overcome the identified development backwardness and to improve the living conditions of the inhabitants of the region.

#### **4. New economic policy of local government of the Lublin Region**

The modernization of the socio-economic sphere, including the development of the modern and competitive economy of Lublin province is connected with the construction of the regional knowledge-based economy. In this type of region, as Lublin, there is no alternative to the ambitious, challenging and achievable in the long term task of building the modern knowledge-based economy. As the examples of many countries and regions show, it gives a real chance to overcome development backwardness and to achieve social and economic development in the areas covered by the new economic policy. In the case of Lublin province, which ranks among the least developed regions of Poland and the EU, the KBE construction is the only chance for the effective economic and civilization development of the region and the improvement of its competitiveness.

The modernization of the regional socio-economic sphere in regions of eastern Poland, including Lublin province, is a great challenge for the state and local authorities and other entities of the socio-economic sphere. It required the introduction of major changes in the previous economic policy. Their aim was the modernization of regional economies of provinces we are interested in, directed towards building the innovative and competitive KBE. This new economic policy of local authorities of Lublin province, focused on building the

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<sup>29</sup> See *ibidem*.

knowledge-based economy in the province, eventually crystallized at the moment of Polish accession to the EU and receiving structural support from the Community. However, its origins can be found earlier, pointing to the Lublin Province Development Strategy (LPDS) prepared at the turn of the twentieth and the twenty first century, more precisely in 2000, by the regional government of the province.<sup>30</sup> The work on the next development strategy, effective until recently, the Lublin Province Development Strategy for the years 2006 – 2020 (LPDS 2020)<sup>31</sup>, prepared in 2005 and updated in 2009<sup>32</sup>, started at the end of the pre-accession period, when the primary task of public authorities was the best preparation of Poland for the membership in the EU. This also applied to local authorities of Polish eastern regions, which started to pay special attention to the broadly understood modernization of the region, and in particular the modernization of the regional economy and the related planning.

The basis for the LPDS 2020 was a report prepared on the basis of the data and analyses from the late 90s of the last century, which contained a detailed analysis of conditions of the development of the region in strategic areas.<sup>33</sup> The LPDS 2020 implemented from 2006 to 2014 was a long-term document which established the goals and directions of the development of Lublin province for next decades.<sup>34</sup> It became a basis for all pro-developmental activities in the region co-financed both from the national funds and from the European Union Structural Funds<sup>35</sup>. After ten years of the implementation of the LPDS 2020, in connection with the changing conditions of domestic development and the EU economic policy, it became necessary to prepare an updated, new development strategy of Lublin

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<sup>30</sup> *Strategia rozwoju województwa lubelskiego*, J. Polski (ed.), Lublin: Urząd Marszałkowski Województwa Lubelskiego 2000.

<sup>31</sup> *Strategia Rozwoju Województwa Lubelskiego na lata 2006 – 2020*, Lublin: Zarząd Województwa Lubelskiego 2005, vol. I (Conditions and the diagnosis of the initial state) and II (Objectives and priorities of the strategy and the implementation system).

<sup>32</sup> *Strategia Rozwoju Województwa Lubelskiego na lata 2006 – 2020*, Lublin: Zarząd Województwa Lubelskiego 2009, vol. I (Annex to vol. I Strategy: Conditions and the diagnosis of the initial state), vol. II (Objectives and priorities of the strategy and the implementation system).

<sup>33</sup> See *Strategia Rozwoju Województwa Lubelskiego. Raport –bilans otwarcia*, (ed.) A. Zdunek, Lublin: Biuro Planowania Przestrzennego 2000. This report was the basis for the preparation of the referenced development strategy of Lublin province of 2000, which the local government of the region adopted on 14 July 2000. (*Strategia rozwoju województwa lubelskiego*, ed. J. Polski, Lublin: Urząd Marszałkowski Województwa Lubelskiego 2000).

<sup>34</sup> The LPDS 2020 was adopted by *Resolution No. XXXVI/530/05 of 4 July 2005 by the Lublin Province Council*. The authorities of the province were obliged to prepare the strategy by *the Act on the provincial self-government dated 5th of June 1998* (Dz.U. 1998, Nr 91, poz. 576). It imposed on local authorities of the region a duty to undertake actions aiming at the broadly understood development of the region, which included, among others, stimulating economic activity, creating conditions for economic development, supporting the development of science and cooperation between science and the economy, promoting technological progress, as well as increasing competitiveness and innovativeness of the regional economy.

<sup>35</sup> The LPDS 2020 was included in national strategic documents, including in the *National Development Strategy for 2007-2015*, Warsaw: Ministry of Regional Development 2006; *The National Strategic Reference Framework for 2007-2013 (National Cohesion Strategy)*, Warszawa: Ministry of Regional Development 2006, *Strategy for Socio-Economic Development of Eastern Poland to 2020*, Warszawa: Ministry of Regional Development 2008.

province. It is the Lublin Province Development Strategy for the years 2014 - 2020: with a 2030 prospect (LPDS 2030), passed by the Lublin Province Council on 24 June 2013.<sup>36</sup> Both in the LPDS 2020 and in the LPDS 2030 special importance for the development of the region was assigned to the European Union Structural Funds. Since Polish accession to the EU, the Structural Funds have been a major source of financing of the development of Lublin province. In the next programming periods, that is 2007-2013 and 2014-2020, Poland and its regions have gained even bigger financial support for development. From the beginning, the implementation of the LPDS 2020 and its continuation LPDS 2030 has been supported with these funds within national and regional Operation Programmes (OP).

Within the LPDS 2020/LPDS 2030, the local authorities of Lublin province undertake activities the aim of which is the gradual initiation of a number of developmental processes in the territory of Lublin province. The basic premise of this development policy is the gradual improvement of the competitiveness of the region, which is to be supported by the maximum utilization of the potential and development capabilities of the province. According to the regional development policy presented in the LPDS 2020, Lublin province should become the region with the competitive economy, the region of society based on knowledge, the territorially cohesive region, the region which is efficiently managed and open to international cooperation<sup>37</sup>. In order to ensure the greatest efficiency of the strategies, they are implemented by means of various instruments, such as development programmes, multiannual investment plans, the Regional Innovation Strategy of Lublin Province to 2020 (RISLP 2020), projects of interregional cooperation, projects of public-private partnership, province contracts, sectoral programmes of individual ministries and also projects realized with the participation of the European Union Structural Funds within national and regional OPs. The main goal of the LPDS 2020 was "the achievement of stable and sustainable socio-economic development of Lublin province through increasing the competitiveness of the province and the optimal utilisation of its internal development potential"<sup>38</sup>. In the currently implemented LPDS 2030, four strategic development goals of Lublin province in the perspective of 2030 are indicated, that is: I. Strengthening of the urbanization of the region; II. Restructuring of agriculture and development of rural areas; III. Selective increase in the potential of knowledge,

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<sup>36</sup> *Strategia Rozwoju Województwa Lubelskiego na lata 2014 – 2020 (z perspektywą do 2030 r.)*, Lublin: Urząd Marszałkowski Województwa Lubelskiego 2013.

<sup>37</sup> See LPDS2020, update 2009, vol. II, pp. 27-32.

<sup>38</sup> LPDS, update 2009, vol. II, p. 33.

qualifications, technological advancement, entrepreneurship and innovativeness of the region;  
IV. Functional, spatial, social and cultural integration of the region.<sup>39</sup>

The analyses of weak and strong points of the Lublin region economy, conducted for LPDS 2020, show that its low level of competitiveness is influenced by many factors, mainly structural ones. The most important of them according to the LPDS 2020 are: the detrimental employment structure in the economy, the dominance of the little effective agricultural sector and the insufficiently developed market service sector. They are accompanied, according to the authors of the LPDS 2020, by the underdevelopment of the production sector with a predominance of traditional industries which produce little processed goods and the absorbency of research and development work. The low degree of innovation of the Lublin province regional industry is evidenced by the insufficient number of technologically advanced products, a high degree of depreciation of productive assets and insufficient investment outlays on the reproduction and modernization of the production base. The unfavourable conditions for economic development and competitiveness of the region's economy are determined largely by underdeveloped transport and telecommunications infrastructure, the underdeveloped institutional and financial systems of supporting entrepreneurship and innovation in the region, as well as too little engagement of the research and development sphere in the regional economy. All this translates into the low level of social development of the region and the related negative trends such as the aging population, emigration of people of working age, or a negative image of Lublin province.<sup>40</sup>

The experts preparing the LPDS 2020 and LPDS 2030 based the Lublin province development policy on the assumptions of the KBE. The consent of the local authorities of the region to the adaptation and continuation of such a path of economic development testifies to the maturity of the local government and its determination at modernizing the province of Lublin in the spirit of the guidelines offered by the EU CP and the new development strategy "Europe 2020". The indicated direction of the modernization activities appeared with Polish accession to the EU and was reflected in the LPDS 2020 prepared at that time. In this document, particular attention was paid to strengthening the fundamental determinants of the "new economy", including the R&D sphere, innovativeness of the regional economy and

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<sup>39</sup> LPDS 2030, pp. 40-41.

<sup>40</sup> The analyses of the LPDS 2020 and 2030 note, among others, low quality of life and impoverishment of the region's inhabitants, unsatisfactory level of education and inadequate adaptation of the knowledge and skills of citizens to the requirements of the labor market, low employment rate, accompanied by poverty and social exclusion evident especially in rural areas.

information society.<sup>41</sup> According to the assumptions of the LPDS 2020, the modernization of the economy of the region in line with the KBE will lead to the situation in which in the future it will be the economy characterized by the high intensity of investment layouts on research and development, extensive use of ICTs and high qualifications of employees. The share of the manufacturing and service sectors based on knowledge in value added and exports, according to the authors LPDS 2020, should become in the future one of the main determinants of the modern economy of Lublin province. The consistent implementation of this course of the modernization action should, according to the authors LPDS 2020, lead to a situation in which the economy of Lublin province will clearly resemble the economies of the developed regions of the EU, which should be accompanied by, first of all, reducing the share of agriculture and traditional sectors in the creation of value added and employment, while increasing the share of areas related to advanced technologies, protection of the environment and health, as well as modern tourism. The modernization of the Lublin province economy, to which we pay special attention today, requires its specialization in specific manufacturing and service niches. The potential of the region of Lublin provides opportunities for such economic specialization in the fields of, among others, high quality food production, renewable energy or specialist services provided in cooperation with global companies and regional scientific research centres.

One of the desired effects of such a direction of development of the economy of Lublin province should be, as highlighted in the LPDS 2020, a clear improvement in the condition of society of the region, which plays a key role in the transformation of the social and economic sphere and building the knowledge-based economy. The condition for the success of the construction of this type of KBE in such a region like Lublin is the effective activity directed towards increasing the employment and improvement of the living conditions of inhabitants of the region. The LPDS 2020 emphasizes the need to stimulate economic development and create new jobs in Lublin province related primarily to the future-oriented sectors of the economy, closely linked with the directions of smart specialization of the province. Bearing in mind the issues of employment and new jobs, the LPDS 2020 stressed the importance of the quality of human capital and better adaptation of employees to changing conditions and needs of the labour market in times of globalization. This is possible only through a fundamental improvement in the quality of vocational and academic education, as well as through the development of various forms of continuous education

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<sup>41</sup> See LPDS2020, 2005, vol. I, pp. 47-55.

taking into account the development of information society which should use a wide range of ICTs.<sup>42</sup>

## **5. The support for building the regional Knowledge Based Economy in the Lublin Province Development Strategy for the years 2006-2020 and 2014-2020 (with a 2030 perspective)**

The modernization of the regional socio-economic sphere and the KBE construction are among the most important goals of the LPDS 2020 and LPDS 2030. For the full presentation of the economic policy of local authorities of Lublin province it is necessary to analyze both mentioned strategic documents in terms of the modernization of the regional economy and building the KBE. It should be borne in mind that these strategies are interrelated and delimit basic stages of the socio-economic modernization of Lublin province from Polish accession to the EU until 2030. The author of the study draws attention to the priorities, strategic and operating goals of the LPDS 2020 and LPDS 2030 which, in his opinion, are of utmost importance for the development of the regional knowledge-based economy in Lublin province.

### **I. The Lublin Province Development Strategy for the years 2006 – 2020**

The LPDS 2020 identifies four key development priorities of Lublin province and the related operational objectives within which actions were formulated which are guidelines for modernization initiatives related to the construction of the innovative and competitive knowledge-based economy. The document indicates the preferred direction of modernization activities for both the local authorities of the region and the entities of the regional socio-economic sphere cooperating with them and supporting the transformation of the Lublin province economy in accordance with the assumptions of the KBE.

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<sup>42</sup> The preparation of human resources for the knowledge-based economy requires from regional government the implementation of appropriate population policy, aimed at reducing negative demographic trends connected with the aging and emigration of the population of the region. In the LPDS 2020 the main elements of this policy are support for the family and concern for improving health and fitness of inhabitants of the region by increasing access: to health services and mass development of sport and physical culture.

Courses of action of the LPDS 2020 supporting the development of the KBE in Lublin province:

Within Priority I: "***Increasing the competitiveness of the regional economy and its ability to create jobs***"

The modernization of the structure of the regional economy and increasing its competitiveness are key challenges faced by the region of Lublin. The new development policy of the region focused on building the KBE tries to rise to them. The success of the KBE construction depends on effective implementation of the guidelines of this Priority. The conducted analyses of the strengths and weaknesses of the region's economy show that the low level of its competitiveness is influenced by many factors, mainly of a structural nature, namely - the detrimental employment structure in the economy, the dominance of the little effective agricultural sector and the insufficiently developed market service sector. They are accompanied by the underdevelopment of the production sector with a predominance of traditional industries which produce little processed goods and the absorbency of research and development work. The underdevelopment of transport and telecommunications infrastructure in the region, as well as the poorly developed system of institutional and financial support for entrepreneurship and innovation in the region, with little involvement of local R&D potential very negatively influence the competitiveness of the Lublin province economy.

The change of the economic structure of the region is a challenging and time consuming task. Increasing the share of manufacturing and service disciplines based on knowledge in value added and in exports will be one of the main indicators of growth of modernity and competitiveness of the economy of Lublin province. The basis for these goals are adequate outlays on research and development, extensive use of new information and communication technologies and highly qualified employees. As a result of the implementation of this economic policy, the region will slowly become similar to the economies of developed EU regions, which will result in the reduction of the share of agriculture and traditional sectors in the creation of value added and in employment, while increasing the share of areas related to advanced technologies, protection of the environmental and health, as well as recreation and leisure. It should be added, moreover, that the modernization of the Lublin province economy is connected with the strengthening of the regional specialization in certain production and service niches. Given the potential and resources of the region, the areas of this specialization are: production of high-quality food, the development of renewable energy sources and the

development of specialized services in cooperation with global companies and national and foreign scientific research centres.

Priority 1 and the related directions of development of the region are achieved through the implementation of 6 operational objectives aiming at the gradual elimination of the weaknesses of the region's economy and strengthening those elements and areas of economic development, which in the long run will help to shape the competitive profile of the KBE, able to reduce in the long term the gap between Lublin province and developed regions.<sup>43</sup>

Operational objective 1.1: "***The restructuring of traditional sectors of the regional economy and adapting it to the rules of the common market***". Operational objective 1.1 is connected with activities supporting restructuring and modernization of enterprises operating in traditional sectors of industry and services. They consist in supporting the technological modernization of enterprises and their adaption to the EU requirements pertaining, among others, to the environment protection, safety and competition, with particular reference to the modernization of the energy sector in order to satisfy the energy needs of the region during its transformation and construction of the KBE (including the use of energy from renewable sources).

Operational objective 1.2: "***Developing and improving the competitiveness of the regional agribusiness***". Operational objective 1.2. is connected with activities aiming at the fundamental modernization of the low efficiency of the agricultural sector and the support for the related food processing industry. Their goal is the improvement of the efficiency of the agricultural sector, as well as its innovativeness and competitiveness, which should lead to improving the efficiency of the whole sector and generation of higher revenues by it. Bearing in mind the development of the knowledge-based economy in the region, the increase of the technological competitiveness of the regional food industry, the strengthening of innovation and R&D activity for the modernized agricultural sector are pursued.

Operational objective 1.3: "***The specialization of the province in selected manufacturing and services sectors characterized by a high level of competitiveness***". Operational objective 1.3 is connected with activities strengthening the internal development potential of the region, which with proper orientation, in the long term, will lead to the emergence of the competitive

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<sup>43</sup> See LPDS2020, 2009, vol. II, pp. 42-49.

knowledge-based economy with a profile resulting from the specialization of Lublin province (production of high-quality food, biofuels and energy from renewable sources, highly specialized services, tourism, education of personnel for the European labour market). We should also point out here, among others, the actions in support of EcoEnergy production from renewable sources, production and services in highly specialized industries (outsourcing, information technology and business services), the regional system of higher education and cooperation between businesses and research and development entities.

Operational objective 1.4: "***The development of small and medium-sized enterprises and the increase of the level of their innovativeness***". Operational objective 1.4 is connected with activities aimed at strengthening the sector of small and medium enterprises, which is of key importance for the modernization of the regional economy and the construction of the KBE. The sector of small and medium-sized enterprises (SMEs) in the Lublin region is underdeveloped and faces many serious developmental problems.<sup>44</sup> We have here in mind the measures aimed at overcoming the main weakness of the SME sector, which also constitute a barrier to the development of the KBE in the region, among others, associated with increasing the ability of businesses to create and absorb innovations within the regional innovation system, increasing companies' access to external sources of financing, including for the support for innovation (venture capital funds, investment and guarantee funds), development of a comprehensive system of training and counselling for business (including the adjustment of service packages to meet the needs of entrepreneurs, the development of networking cooperation of business environment institutions, co-financing of specialized advisory services for business), as well as supporting cooperative relations and the development of international cooperation of companies with the creation of network structures and cooperative relations.

Operational objective 1.5: "***The development of the regional R & D potential and its use for the needs of the economy***". Operational objective 1.4 is connected with activities aimed at reducing barriers and strengthening the research and development potential of Lublin province, mainly through the establishment of closer cooperation between the science sector and the economic sphere within the regional innovation system. The research potential of the

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<sup>44</sup> As noted in the LPDS2020, numerous formal and legal barriers to doing business, the underdeveloped system of self-government and business institutions are not conducive to the development of SMEs. An additional barrier to the development of SMEs and to enhancing their competitiveness is the hindered access to external sources of financing and the lack of proper support by the state authorities for enterprises in creating and absorbing innovations, mainly in the framework of direct cooperation with R&D entities.

region was recognized in the LPDS 2020 as one of the strengths of the region and its economy.<sup>45</sup> Measures undertaken in this area involve, among others, strengthening the research base of universities and R & D institutions in the region (investments in premises, scientific and research equipment, the creation of co-operation networks of scientific centres and research and development units within the national and the European research area), the development of knowledge and research in disciplines of science strategic for the region<sup>46</sup>, strengthening cooperation between the research and development sector and entrepreneurs, and the development of regional knowledge transfer and research commercialization infrastructure as a fundamental element of the regional innovation system.

Operational objective 1.6: "*The development of the information society*". Operational objective 1.4 is connected with activities stimulating the development of the information society and its infrastructure, which are the foundation for the KBE. In the case of Lublin province one of the biggest barriers to the development of the information society, and hence the KBE, is the underdevelopment of broadband Internet infrastructure. Efficient and effective management of information, data and knowledge created in its effect, is a prerequisite for building competitive advantage in the region in the era of globalization.<sup>47</sup> Among the measures carried out in this area we should enumerate actions aimed, among others, at the development of basic regional ICT infrastructure enabling the universal and affordable access to information resources (building a backbone broadband network and the expansion of the access network at the local level), support for the public access to the Internet, stimulating the development of e-business with greater computerization of business operations and computerization of public administration and development of public e-services.

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<sup>45</sup> At the same time, a number of weaknesses in R & D are indicated, including the poor quality of its offer and maladjustment to the needs of the regional economy. These weaknesses largely result from the reasons beyond the academic personnel, and specifically from the low level and unfavorable structure of funding of science and R&D activities in Poland, insufficient scientific-research equipment and a high degree of wear of the equipment, as well as the lack of basic knowledge transfer and research commercialization infrastructure. These negative phenomena are also accompanied by problems associated with the restructuring of financing of Polish science and many scientists' difficulty in adapting to the challenges of the KBE.

<sup>46</sup> These disciplines result from the Regional Innovation Strategy of Lublin Province to 2020 and encompass disciplines such as: engineering, biotechnology, information technology, environmental protection, agriculture and agricultural processing, and production of energy from renewable sources.

<sup>47</sup> The underdevelopment of ICT infrastructure and the high cost of using it necessitated the realization of the great investment project "Polish Eastern Broadband Network" in Eastern Poland in recent years, which, thanks to the support coming from the EU SF, is fundamentally changing regions of Eastern Poland in terms of broadband Internet access.

Within Priority II: "*The development of modern society and human resources adapted to the requirements of the Knowledge Based Economy*"

Sustainable and balanced development of the region and building of the KBE are not possible without the participation of conscious and educated society. Such society is today the most important economic resource, it is an indispensable element of the "new economy" and is the basis for building the region's competitiveness in the globalized world.<sup>48</sup> The analysis of the socio-economic development of Lublin province carried out in the LPDS 2020 points out to a low level of social development of the region and the presence of a number of barriers to citizens' adaptation to the challenges of the "new economy". The low level of the modernity of Lublin province society is evidenced, among others, by factors such as: the low quality of life, the impoverishment of the inhabitants, the unsatisfactory level of their education and adaptation of their knowledge and skills to the labour market requirements, the low employment rate, accompanied by high levels of unemployment, poverty and social exclusion (particularly visible in rural areas). The new development policy of the region, expressed in LPDS 2020, in this area puts emphasis on increasing employment, improving the affluence of the region's population and increasing their qualifications.<sup>49</sup> Besides, an important direction of strengthening the social capital of the region, to which the authors of the LPDS 2020 point out, is well considered population policy of the regional self-government, aimed at reducing negative demographic trends connected with the aging of the population and a noticeable decline in the population of the region in the last decade (especially when it comes to young people entering the labour market and, as a rule, well-educated in schools and universities of Lublin province). The access to health services (including e-health) and popularisation of sport and physical culture also have a major impact on improving the health of the residents in the region.

Priority II and the related directions of regional development are achieved through the implementation of six operational objectives aimed at shaping the society of the region. They emphasize the quality of life, the level of education of inhabitants, the level of employment,

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<sup>48</sup> As the authors of the LPDS2020 note, numerous factors determine the modernity of society, the most important are: the quality of life, the overall level of education of citizens, the level of employment, the degree of social and cultural integration, as well as the degree of the sense of security and public order.

<sup>49</sup> The goal of the regional authorities is the creation of more jobs in competitive sectors of the economy, the support for increasing the skills of employees and their better adaptation to the changing needs of the labor market. An important factor for employment growth in the region is active labor market policy at the regional and local level and the improvement of the institutional efficiency of public and private employment services, as well as directing more public money to active unemployment prevention. The latter course of action concerns improving the quality of education at all levels, and the support for various forms of continuous education with particular emphasis on the application of information knowledge and technology.

the degree of social and cultural integration, as well as the degree of the sense of security and public order.<sup>50</sup>

Operational objective 2.1: "***Shaping development-oriented population policy in the region***". Operational objective 2.1 is connected with activities which support shaping of a good condition of the society of the region and its proper structure. It concerns the measures directed towards, among others, the improvement of conditions conducive to the economic independence of families and financial support for parents in reconciling their professional and family duties, the shaping of regional housing policy in such a way that it contributes to satisfying the basic needs of the population in the region (development of cheap forms of housing and social housing construction), and improving the quality and availability of medical services through the modernization and development of health care infrastructure, in particular ensuring access to basic medical services.

Operational objective 2.2: "***Raising the level of education and knowledge of the region's inhabitants***". Operational objective 2.2 is connected with activities aimed at reducing educational barriers at all levels of education, and especially occurring in small towns and rural areas of the region, to which we can include, among others, promoting openness of the education system and adapting the curriculum to the needs of the regional economy and regional labour market, the development of vocational continuous learning in the region and its integration with traditional educational system, the improvement of the quality of teaching in schools and the development of modern forms and curricula (including the acquisition of key skills by learners).<sup>51</sup>

Within Priority III: "***Improving the attractiveness and territorial cohesion of Lublin province***"

The level of attractiveness and territorial cohesion of Lublin province is one of the major indicators of competitiveness of the region and a determinant of sustainable socio-economic development in its area. In the LPDS 2020 attention is paid to such factors as accessibility of

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<sup>50</sup> See LPDS2020, 2009, vol. II, pp. 49-56.

<sup>51</sup> The LPDS2020 enumerates the following key skills: the practical application of knowledge, the use of information, reasoning and analytical thinking, knowledge of foreign languages, knowledge of ICT and computer skills, as well as social skills, i.e. the ability to make decisions, accountability, teamwork and creativity.

the region, the natural environment and cultural heritage, spatial order, the configuration of the settlement network and degree of development of urban centres and surrounding rural areas. The analyses conducted during the preparation of the LPDS 2020 show that the Lublin region is characterized by a relatively low level of attractiveness and territorial cohesion and the intensity of such phenomena as the underdeveloped industrial base and business environment, small absorption of the regional market, the state of being peripheral and the limited communication accessibility. The poor economic condition of most cities in the region, among which Lublin is the largest, inhibits the processes of modernization of the regional economy, including the restructuring of agriculture in the region and the shift of employment from agricultural production sectors to industries and services, which will be the most important areas for building the KBE.

In order to improve the attractiveness and territorial cohesion of Lublin province, the LPDS 2020 indicates first and foremost the need to improve transport accessibility of the region through the development of key infrastructure enabling efficient transport linking the province with major economic centres in the country and in Europe. A gradual improvement of the transport patency within the region, conditioned by a good technical condition of roads and developed network of local railway connections, is also regarded as necessary. Other factors also important for territorial cohesion are the elimination of intraregional differences both in the sub-regional and district dimension in terms of entrepreneurship development and the level of registered unemployment, as well as the effective fulfilment of their developmental functions by towns of the region. Priority 3 and the related directions of development of the region are achieved through the reduction of the barriers to the development of the region, identified in the LPDS 2020, also through the strengthening of these positive features of its area, which significantly contribute to increasing the competitiveness of Lublin province. It concerns, among others, the rich natural and cultural heritage of the region and the polycentric configuration of the city network with the centrally located agglomeration of Lublin, which predisposes it to fulfil metropolitan functions.<sup>52</sup>

Operational objective 3.1: "***Improving the transport accessibility of the province***". Activities connected with operational objective 3.1. focus, inter alia, on the modernization and adaptation of the rail infrastructure to high-speed passenger connections and increasing freight transport, the development of air transport infrastructure and services, as well as on the

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<sup>52</sup> See LPDS2020, 2009, vol. II, pp. 57-64.

development of connections with the neighbouring countries which is facilitated by the modernization and construction of new border crossings and the construction of ancillary passenger service infrastructure. Poor communication and transport accessibility of Lublin province evidenced, among others, by the low density and quality of road and rail networks is an important barrier to the development of the region.<sup>53</sup>

Within Priority IV: "***The development of interregional cooperation of the province and the improvement of the effectiveness of the regional development policy implementation***"

The developed institutional cooperation conducted not only between institutions and partners within the region, but also with foreign partners, as interregional cooperation, as well as the related effective system of regional development management, as emphasized by the authors LRDS 2020, determine to a greater and greater extent the competitiveness of the region. The well-organized and multifaceted institutional cooperation at the regional level contributes to the development of human and social capital, builds institutional capacity of the region and can be an effective tool for exchanging experiences and knowledge, which are the basis for the construction of the regional KBE.

The analyses conducted within the LPDS 2020 show that the regional development management effectiveness in Lublin province is still insufficient and does not fulfil the requirements of the KBE. The authors of the LPDS regarded the lack of a clear division of competences in the field of regional policy in Poland, as well as the scarcity of appropriate instruments for its effective implementation as particularly important. Another major obstacle is the low institutional capacity of administration and institutions of the region to fulfil their assigned functions and tasks. The LPDS 2020 implementation is conducive to the better use of development opportunities of the region connected with interregional, both national and international, cooperation pursued by the local government. This cooperation plays an extremely important role in the promotion of the region and establishing business contacts. They result in new investments, the inflow of foreign investors, followed by flows of knowledge and technology used by the regional economy, necessary for the development of the KBE. The LPDS 2020 also emphasizes the substantiation of measures and the need to engage a broad range of stakeholders both from other regions of Eastern Poland, as well as

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<sup>53</sup> We can speak about the growing importance of air transport for the development of Lublin province only from 2012, i.e. since the opening of Lublin Airport.

regions from abroad in the implemented projects, using here primarily the opportunities for cooperation of Lublin province with bordering regions of Belarus and Ukraine.

Priority 4 and the related directions of the Lublin province development are achieved through the fuller use of the opportunities offered by interregional cooperation, including economic cooperation, developed on the national and international level, and giving the region specific benefits, among others, the promotion of the region, attracting investors and capital, and greater involvement of a broad range of stakeholders in the implementation of regional development projects. Moreover, operational objectives aimed at efficient inter-regional cooperation, which is an important element of regional development and the associated transformation of the economy of Lublin province serve the realization of Priority 4.<sup>54</sup>

Operational objective 4.2: "***Strengthening the capacity of the region to conduct efficient regional policy***". Activities connected with operational objective 4.2. concentrate, among others, on the tightening of the cooperation of regional administration in a European system (training of public employees, the introduction of ISO standards in public administration, development of computerization and on-line services in government offices), the improvement of the quality of strategic and operational planning in the region (strengthening the competence and knowledge of employees of planning units of local governments, increasing the degree of correlation of planning documents of different levels, the development of strategic planning instruments -GIS, HERMIN), and building of the cross-regional public-private partnership in strategic planning and in the implementation of common regional policy (mutual consultation of local governments of Polish Eastern regions, the creation of economic clusters and super-regional infrastructure).

Operational objective 4.3: "***Improving the effectiveness of promotion of the region and its ability to attract investment from outside***". Activities connected with operational objective 4.3 focus, among others, on conducting effective regional marketing domestically and abroad aimed at the promotion of the region and its operators, the construction of an efficient and comprehensive information and investor service system in the region, effective use of the information society tools in the promotional activities of local governments which will allow

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<sup>54</sup> See LPDS2020, 2009, vol. II, pp. 65-68.

for broad exchange of information, especially this concerning investment opportunities in the Lublin region.

## **II. The Lublin Province Development Strategy for the years 2014 - 2020 (with a 2030 perspective)**

The changing conditions of the development of Polish regions, both internal and external ones, forced the local authorities to re-diagnose the Lublin region development opportunities and to introduce adjustments in the current economic policy. The result of these activities is the Lublin Province Development Strategy for the years 2014 - 2020: with a 2030 perspective (LPDS 2030) prepared in 2013.<sup>55</sup> The LPDS 2030 newly introduced directions of development activities for the local governments of Lublin province and indicated measures by means of which they can be accomplished. The LPDS 2030 replaced the existing development priorities with 4 strategic goals of development in the framework of which there are operational objectives. The strategic goals of the development of Lublin province in the LPDS 2030 are: I. Increasing the urbanization of the region. II. Restructuring of agriculture and development of rural areas. III. Selective development of the region's potential in the fields of knowledge, qualifications, technological advancement, enterprises and innovation. IV. Functional, spatial, social and cultural integration of the region.

Courses of action of the LPDS 2030 supporting the development of the KBE in Lublin province:

Within strategic goal III: "***Selective development of the region's potential in the fields of knowledge, qualifications, technological advancement, enterprises and innovation***"

This goal emphasizes the importance of innovativeness for the development of a modern economy and suggests taking action aimed at increasing innovativeness of these lines of business activities in the region which are rooted in its economic tradition and can be supported by the research and development base developed already as a result of the implementation of LPDS 2020 according to the currently adopted principle of development of

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<sup>55</sup> The Lublin Province Development Strategy for the years 2014 - 2020 with a 2030 perspective, Lublin: Marshal Office of Lublin Province 2013.

the region assuming smart specialisation. The indicated strategic goal III is implemented through six operational objectives.<sup>56</sup>

Operational objective 3.1: "***Support the most promising fields of research and commercialization of results***". It concerns the effective use of the high scientific research potential of Lublin province concentrated especially in the sciences related to broadly understood bio-innovations, including bio-medicine, the identified regional smart specializations, as well as closer links between science and networks of entrepreneurship support organizations. The activities proposed under operating objective 3.1. are focused on strengthening the economic impact of the science sphere, selective support for the best teams and research institutes, their human potential, links with national and world science, and support for network links among scientific institutions of the region, and especially technology transfer institutions.

Operational objective 3.2: "***Support university programmes of special significance for the region's future labour with a unique supraregional role***". A great advantage of Lublin province, not often encountered in underdeveloped regions and extremely important in the modernization of the regional socio-economic sphere and in the development of the KBE, is the large academic potential. In the case of Lublin province it is in addition fairly evenly geographically distributed and includes both public and private universities. The demand for qualified staff has encouraged universities for many years to restructure their education profiles with particular emphasis on modern fields of knowledge and intelligent specialization of the region. The diversity of educational institutions in the region of Lublin causes the fact that in the province it is possible to find specialists in almost every field, which is of great importance for the economy of the region which needs specialists. Moreover, the rich educational offer makes the region competitive in terms of education, not only nationally, but also internationally, as evidenced by the high number of foreign students studying at the universities of Lublin province.

The activities planned under operating objective 3.2 focus primarily on the identification of unique fields of education, the preparation of new educational curricula and the support for their development, as well as on expanding the so-called programs of ordered specializations

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<sup>56</sup> See LPDS2030, 2013, pp. 58-68.

related to the needs of the regional labour market, especially the modernization of the regional economy.

Operational objective 3.3: "***Create a system of academic, expert and implementation support promoting the development of selected economic sectors***". Achieving a high level of innovation in the regional economy requires effective cooperation between the R & D sphere and businesses, especially in the areas which are of key importance for the competitiveness of the regional economy. In the case of Lublin province, the area particularly important for its economic development is a food complex, as well as sectors of the economy focused on bio-innovations. Their support is long-term and it implies cooperation of the research and economic spheres in the international dimension (agriculture, food processing). The activities planned under operating objective 3.3 encompass, among others, supporting the creation and development of commercial entities specializing in intellectual property management; developing the mechanism of supply and demand (push-pull) for raising the innovativeness of the regional economy and strengthening the role and functions of business environment institutions (including institutions for technology transfer and innovation).

Operational objective 3.4: "***Develop an education system adapted to the region's specific characteristics***". Dynamic economic and technological changes make it necessary to continuously raise qualifications and adapt them to new social and economic conditions. As the authors of the LPDS 2030 noted, the efficient, modern and accessible system of education, including vocational, continual education, professional training and professional counselling should respond to these challenges. At the same time, the system of job agencies and professional counselling should ensure better adaptation of expectations and possibilities of employees to the needs of the economy. This system should benefit from the latest Polish and international experiences in this field, far beyond the current practice. The activities planned under operating objective 3.4 encapsulate, among others, encouraging the individualization of education (e.g. the creation of innovative attitudes, entrepreneurship and management skills), supporting cooperation among enterprises and labour market institutions and educational institutions, promoting the construction and effective development of employment agencies and a vocational training system, the modernization and development of job placement and professional counselling institutions, conducting of active forms of support for employment and development of networks of continuing education institutions (including distance learning).

Operational objective 3.5: "***Support small and medium sized enterprises (SMEs)***". Small and medium-sized enterprises (SMEs) play a key role in stimulating regional economic development and building the KBE. For this reason, they should be a subject of particular interest and support from regional governments. The LPDS 2030 postulates support for economic activity exactly in the SME sector. These actions lead to a reduction of investment risks related with investments in business ventures, especially concerning the implementation / commercialization of innovations. Bearing part of the risk associated with it by the public sector, and especially in the sphere of priority directions of support based on bio-innovative nature of the regional economy and science, is an essential element of the support for regional entrepreneurship and an instrument for raising the competitiveness of the regional economy. The activities planned under operating objective 3.4 include, among others, supporting the processes of cooperation and networking of companies from the SME sector, facilitating establishment of companies, supporting the development of financial engineering instruments (especially for SMEs), support for the staff development of regional enterprises and cooperation in the creation of investment areas and entrepreneurship development zones.

Operational objective 3.6: "***Develop an information society***". One of the key elements conducive to enhancing the region's competitiveness and enabling the development of the KBE is a developed information society. Therefore, the obtainment of competitive advantages by the region needs to be done on the basis of the development of the information society, ICTs and especially e-economy. The LPDS 2030 pays special attention to the unobstructed flow of knowledge and skills, the popularization of certification systems of specialist computer knowledge, the use of alternative forms of intellectual property protection (creative commons), the development of unique contents and services, with particular emphasis on the needs of local communities. A challenge for the regional authorities, according to the authors of the LPDS 2030, is to develop an internal knowledge management mechanism constituting an important factor of competitive advantage particularly in global markets and to reduce the costs of institutions and businesses in the region. The activities planned under operating objective 3.6 include, among others, increasing access to broadband Internet in areas where the network is poorly developed, the development of e-services, supporting the development of new models of e-business, digitization and increasing the access to the resources of science, the development of digital culture and e-learning and investments in e-skills and skills related to modern entrepreneurship.

## **6. The importance of the Regional Innovation Strategy of Lublin Province for the construction of the regional KBE in Lublin Province**

Regional Innovation Strategies (RIS) and Regional Innovation Systems (RISys) are crucial for the modernization of the regional economy and the construction of the KBE<sup>57</sup>. They enable the effective use of innovative knowledge resources and, as a result, the implementation of innovations, on which the "new economy" is based and thanks to which it develops.

RSIs are strategic operational documents which define the objectives and directions of development of the regional innovative economy in the established timeframe. They represent a kind of a signpost which shows in which direction the local authorities should work to effectively support the modernization of the region's economy. The main objective of RISs are to increase the innovation potential of the regional economy based on its resources, to build interdependencies between socio-economic entities of the region, and above all to care for the most efficient use of accumulated regional knowledge resources, technology and experience of its inhabitants.

In turn, RISys are deliberately developed networks of institutions, both public and private ones, i.e. enterprises, business organizations and other entities operating in the region and connected with one another. RISys encompass enterprises, regional authorities, universities, research and development institutes, regional development agencies, financial and crediting institutions and organizations for entrepreneurship and innovation (including incubators, regional technology transfer centres, industrial and technology parks, consulting companies and special economic zones). A very important element of RISys are clusters which foster the expansion of the identified networks connections in the region and contribute to increasing the regional economy innovativeness.

The aim of the entities involved in RISys is to support entrepreneurship and innovativeness of the region by strengthening the innovation capacity of companies on its territory. Entities forming RISys are supposed to actively participate in the development and implementation of innovations, which are the foundation of the modern and competitive economy. The essence of RISys mission is to create sustainable partnerships between research institutions, companies, advisory and financial entities and local governments in the field of

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<sup>57</sup> See T. Markowski, J. Kot, E. Stawasz E., *Regionalne systemy innowacji jako podstawa budowania konkurencyjności polskich regionów*, „Samorząd Terytorialny”, 6(1996), p. 58 ff.

the promotion of research and innovation. The structure RISys is a specific type of a network system, in which all stakeholders act in order to obtain the maximum benefit from the use of specialist knowledge and innovation implementation. One of the most important features of this system is that the relationship between the participants in the network are based on the principle of cooperation, exchange, rather than on the principle of subordination of one body to another or unhealthy rivalry.<sup>58</sup> RISys also impose the change of approach to the management of the region so that individual entities of RISys networks are able to meet difficulties appearing in their everyday functioning.<sup>59</sup> For this reason, the successful implementation of policies aimed at building the KBE in the region requires the involvement and good cooperation between local and regional governments.<sup>60</sup> While analyzing the recommendations of the local authorities of Lublin province relating to the modernization of the regional socio-economic sphere and construction of the KBE special attention should be paid to the Regional Innovation Strategy of Lublin Province to 2020 (RISLP 2020)<sup>61</sup>, which is a special kind of complement to the recently implemented LPDS 2020 and LPDS 2030. The importance of the RISLP 2020 stems from the fact that it is a set of guidelines for regional innovation policy, which is the basis for the KBE built in the Lublin region.

The RISLP 2020 is a particularization of the LPDS 2020 and LPDS 2030 in the section devoted to the development of research and innovation for the smart specialization of the region. The mission of the RISLP 2020, as we read in the document, is supporting the development of the innovativeness of Lublin province, as well as launching the process of technological and non-technological transformation of endogenous development potentials, increasing productivity and knowledge absorption of the regional economy and diversification of its structure leading to a growth of the share of industries and services with high value added and high growth potential in the economy. The RISLP 2020 supports a selective model of development of the region, i.e. development based on smart specializations, which we understand as the development of these areas of R&D and innovation, which strengthen the endogenous development potentials of the region. The identification of the areas of smart specialization, understood in this way, is based on the promoted by the European Commission

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<sup>58</sup> Key elements forming the RSI are local authorities, regional development agencies, universities and R&D institutes, technology transfer centers, financial institutions and prominent companies.

<sup>59</sup> See E. Okoń-Horodyńska, *Jak budować regionalne systemy innowacji*, Warszawa – Gdańsk: Instytut Badań nad Gospodarką Rynkową 2000.

<sup>60</sup> See L. Metcalfe, *Public management from imitation to innovation*, "Australian Journal of Public Administration", vol. 52(3), 1993, pp. 292-304.

<sup>61</sup> *Regionalna Strategia Innowacji Województwa Lubelskiego do 2020 roku*, Lublin: Urząd Marszałkowski Województwa Lubelskiego 2014.

bottom-up, entrepreneurial process of discovery<sup>62</sup>, backed by a thorough analysis of the economic, scientific-technological, educational and institutional potential of Lublin province. The RISLP 2020 identifies four areas of smart specialization of Lublin province - bio-economy, medicine and health, information technology and automation, and low-carbon energy. These areas overlap, are complementary to one another and include those areas of activity that are grounded in traditional fields of economic and scientific-technological specialization of Lublin province. As the authors of the RISLP 2020 write, these areas slowly gain a better competitive position nationally and internationally, and will be eventually capable of the creation of the critical mass necessary to launch a new path of development of the region.

According to the projections of the RISLP 2020, by 2020 Lublin province should become a region efficiently utilizing its internal potential, creating products and services with high added value, open to innovation and cooperation and better economically and scientifically linked with the outside world. It will be the economy with a strong pro-innovation potential, the province will advance in regional innovation rankings. The following objectives of the RISLP 2020 were subordinated to the execution of such a broad vision: I. The development of territorial capital (esp. in the areas of smart specialization). II. Strengthening of the regional research and innovation system and basing it on the quadruple helix<sup>63</sup>, linking all stakeholders interested in cooperation. III. The inclusion of the region in national and international chain of innovation cooperation and networks. IV. The development of effective instruments for promoting innovation and competitiveness of the economy of the region. V. The stimulation of the dynamic advantages of location (and especially strengthening of business environment institutions, the development of market services for the business, the development of financial

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<sup>62</sup> The entrepreneurial process of discovery consists in the choice of priorities and allocation of resources through the participation of stakeholders from the business world (e.g. companies, universities, research institutes) which demonstrate the most promising areas of development of the region. This process is intended to show how, in the best way, a specific region or country should manage in the research, development and innovation sphere, in line with the assumption that the stakeholders involved in entrepreneurship have the best knowledge and can most accurately determine what the strength of their activity is in the territory of the region. The entrepreneurial discovery is usually done by trial and error and experimentation, and therefore, regions must go out to entrepreneurs with initiative and involve them in the design of the strategy. See RISLP 2020, pp. 6-7; see also *Przewodnik Strategii Badań i Innowacji na rzecz inteligentnej specjalizacji (RIS 3)*, Luxemburg: Urząd Publikacji UE 2012.

<sup>63</sup> The triple helix is a model of innovation involving the relationships among three types of actors - scientific centers, industry and public authorities (government) in the process of creating knowledge. This model is connected with the production of knowledge and innovation, which are the basic component of the KBE. Currently, the triple helix concept is increasingly being replaced by the concept of the quadruple helix, in which the media and civil society are also included in the innovation system. The model enables, according to some scholars (E. Carayannis D. Campbell) more effective formation of the knowledge-based society.

markets relevant to the growth of demand for innovation by companies from the region and outside the region). 3 Priorities and included courses of action, recommend by the local authorities of the region, serve achieving the objectives mentioned in the RISLP 2020 in the time horizon to 2020, including those associated with the construction of the KBE which is of particular interest to us:

**Priority I: *"Increasing the ability of economic entities to create and absorb knowledge and implement innovations, particularly in regional areas of smart specialization"***

The courses of action within Priority I: Course 1.1: Stimulating the development of entrepreneurship, technological entrepreneurship. Course 1.2: The increase in the level of innovation in already operating companies. Course 1.3: The development of knowledge and competencies of industrial personnel (workers and managers). Course 1.4: The stimulation and development of network cooperation of business entities. Course 1.5: The development of financial engineering for innovation adapting to a greater extent than hitherto the type of financial support to the nature of innovation (repayable and non-repayable instruments).

**Priority II: *"Increasing the capability of science and research sector entities to create and commercialize knowledge in the regional areas of smart specialization of the region"***

The courses of action within Priority II: Course 2.1: The development of scientific research personnel to develop and transfer knowledge for the development of smart specializations of the region. Course 2.2: Increasing the efficiency of research infrastructures to conduct and commercialize research in the fields connected with smart specializations of the region. Course 2.3: The growing importance of science of Lublin province in the areas of smart specialization at the national and international level.

**Priority III: *"Strengthening business environment institutions and public administration open to innovation"***

The courses of action within Priority III: Course 3.1: The transformation of business environment institutions into regional growth centres. Course 3.2: The development of efficient public administration open to innovation. Course 3.3: The promotion of entrepreneurship and innovativeness.

The presented courses of action were elaborated on at the level of IMSLP 2020 executive documents.<sup>64</sup> It was also provided that it will be possible to revise the courses of action enumerated in the RISLP 2020 in order to adjust them to the changing conditions of economic development of Lublin province.<sup>65</sup> Important elements supporting the effective implementation of the RISLP 2020 are pilot programs initiating a regional innovation laboratory. It serves the search for solutions which will better adapt the directions and forms of intervention associated with the RISLP 2020 to the changing needs and challenges related to the development of the regional areas of smart specialization.<sup>66</sup> The RISLP 2020 also integrated, as already mentioned, the mechanism of the continuation of the entrepreneurial process of discovery, especially with regard to the R&D and innovation priorities of the LPDS 2020 and LPDS 2030, dedicating to it one of the launched pilot programs - Regional research program in the areas of smart specialization<sup>67</sup>; one of the types of action of the RISLP 2020 within Priority I., Course 1.4: The stimulation and development of network cooperation of business entities; an autonomous instrument to develop common research agendas for individual regional areas of smart specialization encompassing priority research and development projects relevant to the development of companies located in these areas, and one course of action within Priority III, Course 3.2: The development of efficient public administration open to the innovation; aiming, among others, at the establishment of the mechanism ensuring the continuity of the entrepreneurial process of discovery.

The RISLP 2020 is a key element of the economic policy pursued by the local authorities of the region of Lublin in the sphere of the modernization of the regional economy and construction of the innovative and competitive KBE in Lublin province

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<sup>64</sup> It concerns the documents connected, among others, with the Regional Operational Programme of Lublin province for 2014-2022 and sectoral, regional and trans-regional research agendas. The particularization of the courses of action within the framework of the individual priorities of the RISLP 2020 include, inter alia, the type, scale, scope, range, value of border projects, the type of beneficiaries, the structure of non-repayable and repayable instruments involved in individual actions and the mode of calls for proposals.

<sup>65</sup> The revisions were provided on the occasion of updates of the LPDS2020.

<sup>66</sup> These included regional research programs in the areas of smart specialization, technological entrepreneurship, partnerships, networks and clusters, regional growth centres, financial engineering of innovation and innovative public procurement. The inspiration for the pilot programs are good practices collected by the OECD and the platform of Pro Inno Europe, as well as certain projects implemented in Lublin province and related, among others, to academic entrepreneurship and innovation brokers. The aim of the pilot programs is to test new instruments, assess their effectiveness and prepare procedures for disseminating the most effective solutions. (See RISLP 2020 ).

<sup>67</sup> Its goal is, among others, the preparation of priorities of the regional research agenda for the development of smart specializations, the design and testing of a regional technological observatory oriented towards, inter alia, monitoring of new technologies, the identification of their applications, and estimation of the market potential associated with the commercialization of innovative solutions. (See RISLP 2020 ).

### **Final remarks**

Delays in the socio-economic development of Polish eastern provinces, including the province of Lublin of interest to us, have been caused by historical and political circumstances, that have specifically formed the area of the region and affected the potential and achievement of its society. These conditions have also decisively influenced the shaping of the agricultural profile of the Lublin province economy and determined the possibilities of its development. Modern times and the associated processes of globalization have significantly changed the conditions of the functioning of the economic sphere, giving its actors new growth opportunities as well as setting new restrictions. In these conditions the modernization of the socio-economic sphere of Lublin province has become a major challenge, not only for the local authorities of the region, but also for businesses, organizations, and finally the residents themselves, who strive for the improvement of their living conditions and better prospects for personal development. These targets seem achievable today in connection with Polish accession to the EU, thanks to which Lublin province has received a chance for a deep transformation of the socio-economic sphere and for building the innovative and competitive economy which can bring the region not only economic but also civilizational advancement.

The referred development opportunities of Lublin province result primarily from the implementation of EU CP by the regional local government and the availability of structural support thanks to which it is possible to implement the ambitious and effective economic policy. As it has been repeatedly emphasized in this study, it is directed towards a thorough modernization of the region consistent with the assumptions of the "new economy". The actions undertaken by the regional government demonstrate full awareness of the local government environment of the changes taking place today in the social and economic spheres, as well as the determination of the regional authorities to maintain the indicated directions of development of the region. These directions were definitely drawn in the LPDS 2020 and confirmed in its continuation, that is the LPDS 2030. These strategic documents fully correspond to the EU's development policy expressed by CP and the EU's current development strategy "Europe 2020". A very important achievement of these development strategies was the establishment of the appropriate development directions of the Lublin region in close connection with the areas of smart specialization of the province. This approach is the most optimal and gives the region a chance to develop its potential and effectively use the resources accumulated in its area, especially human resources and

knowledge resources which, combined with the developing R&D sphere, are able to generate a powerful impetus for the development of the region of interest to us.

One of the biggest threats for the presented modernization plans of Lublin province is, according to the author of the study, the risk of the possible significant weakening of the human capital of the region, which relates specifically to a group of people of working age, usually well educated in schools and universities of Lublin province. Emigration of young people, which has intensified since Polish accession to the EU, is a major problem and in fact impoverishes the human resources of the region, moreover, the resources of key importance to the modernization of the regional economy and building the KBE. The reasons for the outflow of qualified personnel from the Lublin region are obvious and are associated with better material conditions of life and of personal development in other, more developed regions of the country, especially in richer countries of western Europe. Stopping this migration by creating conditions for decent and interesting life in Lublin province is an extremely difficult task, and it probably exceeds the capabilities of the local authorities in the region which face many difficulties, also resulting from the implementation of the ambitious development strategy of Lublin province. It seems that for the success of economic modernization of Polish eastern provinces, despite the determination and persistent work of local and regional authorities, it will be necessary to obtain greater organized support from the central State authorities.

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