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## **Supporting the development of the information society infrastructure by the European Union funds in the Lublin region (2007–2013)**

Wspieranie rozwoju infrastruktury społeczeństwa informacyjnego  
z funduszy Unii Europejskiej w województwie lubelskim (2007–2013)

### **Abstract**

The study presents measures supporting the development of the information society and its infrastructure with the participation of EU Structural Funds in an underdeveloped region of Poland, that is the Lublin region. The author stresses the crucial importance of the EU funds and the related national operational programmes for the development of the information society in the programming period 2007–2013. The paper presents the most important project supporting the development of the information society infrastructure in Eastern Poland – the project *Broadband Network of Eastern Poland*.

**Key words:** cohesion policy, information society, Eastern Poland, regional development, Lublin region.

### **Introduction**

The chances of socio-economic development of countries and regions in the contemporary world are increasingly determined by human intellectual potential and the related knowledge resources, the unhindered flow of which is facilitated by ICTs (*Information and Communications Technology*). Poland, and especially underdeveloped provinces of Eastern Poland face today a challenging task of building modern and competitive economy based on knowledge. It gives the indicated provinces a good chance of successful development and of improving their competitiveness and investment attractiveness. These priorities can be only achieved with optimal use of resources of the specified group of provinces, and especially of high-quality human resources. Well-developed information society is nowadays the basis for this direction of development.

Despite the distinctive potential of the Lublin Province when compared with other provinces of Eastern Poland, this region struggles with all problems specific for this group of

provinces. One of the biggest concerns of Lublin province is poorly developed infrastructure, including telecommunication infrastructure, without which it is impossible to modernise regional economy or build a well-functioning information society. The study presents the theoretical basis of the information society, the Community's cohesion policy objectives pertaining to it and the possibilities to support its development in the Lublin Province through the development of appropriate infrastructure supported the EU structural funds. One of the objectives of the author of this study was to show the crucial importance of the EU cohesion policy and related support funds for the development of the information society in Lublin region in the programming period 2007–2013.

The basis for the study were Community's, national and regional documents and strategies for economic development, statistical materials<sup>1</sup> and Polish and foreign authors' studies connected with the subject matter in question.

### **1. What is the information society?**

Starting from the second half of the twentieth century, we have been able to observe the process of shaping a new kind of society, referred to as the information society<sup>2</sup>. Its creation is related to the spread of electronics and communication technologies in that very period. In Japan, where the electronics (especially utility one) was developing the fastest, in the early 60s of the twentieth century one began to talk about society communicating by means of a computer (the Japanese term “*johoka shakai*”). In 1963 journalist Tadao Umesao wrote for the first time about the “information society” in an article devoted to the evolutionary theory of society based on information<sup>3</sup>. Daniel Bell, prominent American sociologist, (1919–2011) in his work entitled *The Coming of Post-Industrial Society*<sup>4</sup> analyzing the transformation of modern societies noted that in post-industrial society the dominant resources become information and knowledge created on the basis of it. As a result of these changes, there arises a demand for specialists managing information and knowledge. Bell pointed out some features of the new information-based society (information society). He meant the growing importance of knowledge, scientists and specialists, the focus on technological progress and innovation, the rise of importance of modern services and the development of the fourth and fifth sectors of national economy.

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<sup>1</sup> The article was prepared in the first half of 2011 on the basis of statistical data and their analyses. available at that time

<sup>2</sup> Cf. L. W. Zacher, *Post-information society in the context of the evolution of societies and vision for the future*, [in:] L. Haber, M. Niezgodą, *Information Society*, Kraków: Jagiellonian University Press 2006.

<sup>3</sup> Umesao's vision became reality in the founding of Tsukuba town, which became a research center of Japan.

<sup>4</sup> D. Bell, *The Coming of Post-Industrial Society. A Venture in Social Forecasting*, New York: Basic Books 1973.

For Manuel Castells (1942–), creator of the concept of network society, the information revolution is exactly one of the most important elements of contemporary society transformations.<sup>5</sup> The subsequent spectacular development of such breakthrough innovations as the Internet and mobile telephony has enabled communication and access to information in a manner and on a scale previously unprecedented. Thanks to ICTs distance between people has ceased to be relevant, and the world has quickly “shrunk” creating a “global village”. It has ultimately led to a situation in which information, knowledge and unrestricted communication has become essential goods for modern societies.

The information society is a new type of society formed mainly in developed countries, where modern information and communication technologies constitute an important component of social and economic life. The information society is therefore a society that operates in an environment having extensive telecommunication infrastructure, the range of which covers all citizens, with extensive, publicly available information resources<sup>6</sup>. At the same time it is society which attaches great importance to education taking into account new information technologies and skills. The aims of this society are primarily – universal access to information, modern education and the development of the basic medium, that is the Internet<sup>7</sup>. According to the Organization for Economic Cooperation and Development (OECD), modern societies will increasingly be information societies, that is these in which information will constitute an important part of the added value of most goods and services, and information activity will increasingly characterize citizens and their households<sup>8</sup>. An interesting and at the same time universal definition of information society is given by Michael Casey according to whom the information society is society in which information is a key element of social and economic activities of a man and changes introduced by him<sup>9</sup>.

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<sup>5</sup> M. Castells, *The Information Age: economy, society and culture*, Cambridge, MA; Oxford, UK: Blackwell 2000, vol. 1.

<sup>6</sup> The concept of telecommunication infrastructure should be understood as a set of all technical means by which various types of telecommunication services are carried out, such as – voice services, data transmission, access to the Internet, transmission of television signals, creation of virtual corporate networks, etc. This infrastructure consists among others of aerial and ground cable telecommunication lines, cable ducts (land and municipal duct system), metal and fiber-optic cables and wires, posts and poles, and active and passive devices processing and transmitting analogue / digital telecommunication signals. The so-called supporting infrastructure includes among others power systems, HVAC, fire suppression systems, access control systems and remote monitoring.

<sup>7</sup> On the information society, see the paper of Office of the Committee for European Integration ([www.ukie.gov.pl](http://www.ukie.gov.pl)), on January 1, 2010, OCEI was included in the Ministry of Foreign Affairs of the Republic of Poland), <http://archiwum-ukie.polskawue.gov.pl/www/serce.nsf/0/6A1F328341480FEAC1256F6A0038762F?Open>, date of access 20.05.2011).

<sup>8</sup> See Documents of the Committee of the Organisation for Economic Cooperation and Development for the IT policy (ICCP, Information, Computer and Communication Policy) available on the OECD website ([www.oecd.org](http://www.oecd.org)).

<sup>9</sup> M. Casey, *European information policy. Challenges and perspectives for public administration*, Toruń: International Centre for Information Management, Nicolaus Copernicus University in Torun 2001, p. 34.

## **2. The EU cohesion policy and the development of the information society in 2007–2013**

The most important instrument to support the development of the information society in the current financial perspective is the European Regional Development Fund (ERDF). This fund, which is essential for the development of the EU, “is intended to help to redress the main regional imbalances in the Community. (...) therefore contributes to reducing the gap between the levels of development of the various regions and the extent to which the least favoured regions (...) are lagging behind”<sup>10</sup>. ERDF directs its support in accordance with the current objectives of cohesion policy (I. Convergence II. Regional competitiveness and employment, III. European Territorial Cooperation)<sup>11</sup>. The type and scope of the ERDF support varies, depending on the purpose of cohesion policy it finances.

Supporting the development of the information society falls within the Objective I – Convergence. The fund focuses on supporting sustainable, integrated economic development, among others by supporting the information society, including “electronic communication infrastructure, local content, services and applications, improvement of secure access to and development of on-line public services; aid and services to SMEs to adopt and effectively use information and communication technologies (ICTs) or to exploit new ideas”<sup>12</sup>.

Within the Objective II – Regional competitiveness and employment, ERDF includes actions of a similar nature, as in the case of the Objective I, which are aimed at the promotion of the information society in regions “promoting access to, take up, and efficient use of ICTs by SMEs by supporting access to networks, the establishment of public Internet access points, equipment, and the development of services and applications, including, in particular, the development of action plans for very small and craft enterprises”<sup>13</sup>.

Important for the development of the information society is also the support within the Objective III – European territorial cooperation. It pertains to activities aiming to “improve access to and quality of transport and telecommunication services (...)and promotion of advanced information and communication technologies” on a transnational basis<sup>14</sup>.

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<sup>10</sup> Regulation (EC) No 1080/2006 of the European Parliament of 5 July 2006 on the European Regional Development Fund and repealing Regulation (EC) No 1783/1999

<sup>11</sup> Art. 3 Regulation (EC) No 1080/2006 of 5 July 2006.

<sup>12</sup> Art. 4, p. 2 Regulation (EC) No 1080/2006 of 5 July 2006.

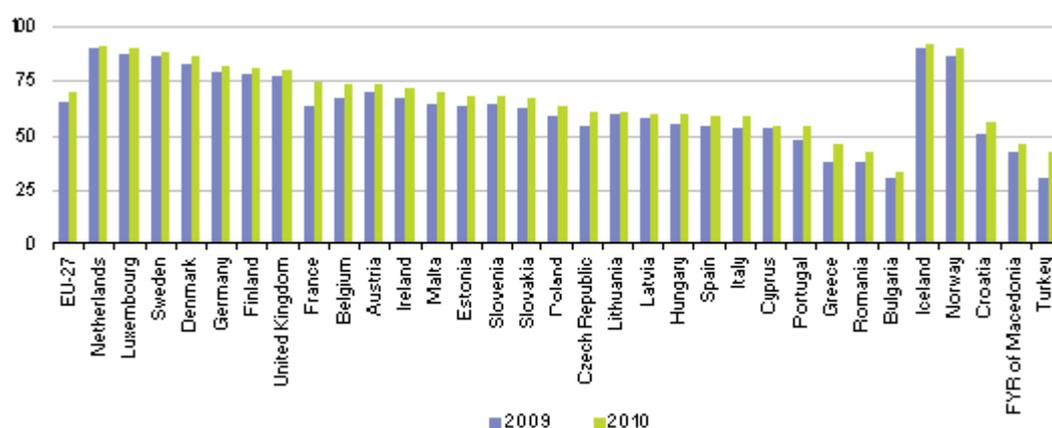
<sup>13</sup> Art. 5, p. 3 Regulation (EC) No 1080/2006 of 5 July 2006.

<sup>14</sup> Art. 6, p. 2 c Regulation (EC) No 1080/2006 of 5 July 2006.

### 3. The availability of ICTs and the advancement of the information society in Polish regions

ICTs have a significant impact on increasing the pace of socio-economic development and improving the quality of life of citizens, especially residents of underdeveloped regions. Without these technologies, it is impossible nowadays to build modern and competitive regional economy. Expenditure on ICTs, computer equipment, software and related services grew relatively rapidly in Polish GDP in the last decade and, according to Eurostat data, in 2006 it came close to the average of this kind of expenditure in the EU (2.6% –2.7% of GDP).

**Chart 1. Households with access to the Internet in selected EU countries (% of all households) in 2009–2010**



Source: Eurostat (online data code: ts\_iir040)

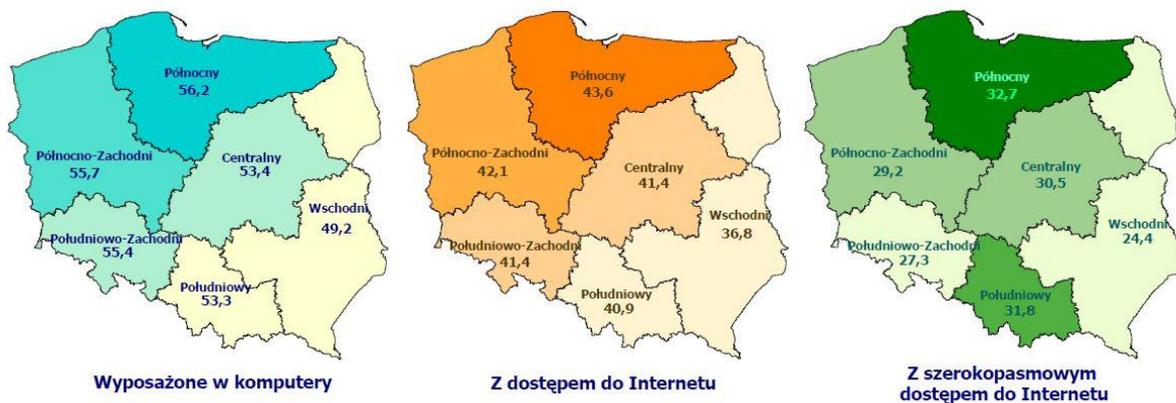
Source: Eurostat

Almost every business today is equipped with computers, most of them also have access to the Internet. The percentage of Polish companies using the Internet in 2008 amounted to 92.7%, the highest was in the Masovian region (97.7%) and the lowest was in the Lodz region (86.8%). Lublin Province ranked in this respect on the mediocre, average level with the index of 92.5%. Until recently 56.6% of companies have had their own website, the largest amount in Masovian Voivodship (66.3%), and the least in Eastern Poland provinces, specifically in Świętokrzyskie Voivodship (43.2%). In the Province of Lublin these were 47.1% such companies (2007).

One of the biggest drawbacks as far as the availability of ICTs in Poland is concerned are significant regional disparities in access to them. The greatest availability of these technologies is observed in Poland's northern provinces, specifically in Kuyavian-Pomeranian, Warmian-Masurian and Pomeranian Voivodships. The weakest results in this respect is in Poland's eastern regions (except Warmian-Masurian Voivodship), including the

Province of Lublin. For the economic development of Eastern Poland the degree of utilization of information technology in companies located in this area is of great importance, in the case of the provinces from the mentioned group it is lower than the national average. The exception here is the ability to use administrative services through the Internet, a field in which some of the Polish Eastern Provinces, including the Province of Lublin, achieve rates higher than the national average.

**Chart 2. The use of information technologies by households (%) in the Polish macro-regions (2008)**



Source: *Regional development in Poland. Report 2009*, Ministry of Regional Development, Warsaw 2009, p. 91 (based on data and studies of the Central Statistical Office).

Another serious difficulty when it comes to making full use of the Internet and related technologies, particularly in less developed regions, such as the Province of Lublin, is still very much limited access to broadband Internet connections in the area. The use of ICTs by the public and regional economy entities is only possible in areas with a well-developed, fixed broadband network. Broadband connections have completely changed the face of the Internet, have facilitated the significant development of electronic resources generated by Internet users, as well as the emergence of digital ecosystems<sup>15</sup>. The access to a broadband network allows citizens to fully use the benefits of the internet and reap the benefits from it, among others in conducting business, in dealing with public administration, in using health care and education at a distance.

<sup>15</sup> Digital ecosystems have appeared relatively recently in connection with the rapid development of the global Internet. These are virtual environments which include various types of elements, including individuals, organizations, services, software, applications, present together and operating within the framework of one or more missions, at the same time entering into mutual relations and interactions. Digital ecosystems have a multi-disciplinary structure and features.

On the basis of the statistics, we can see that Poland is on one of the last places among the European Union member states in terms of public access to the broadband Internet. According to the Office of Electronic Communications (OEC), only 13.5% of Polish citizens are connected to a fixed broadband network (2010). Only the youngest members of the Community fare worse – Bulgaria and Romania (13%). The Union’s average as far as the access to the broadband internet is concerned amounts to 24.8%. There is even a greater gap between Poland and the most developed EU Member states in the field, such as Luxembourg (32.1%) and Denmark (37.8%)<sup>16</sup>.

**Chart 3. EU Member States citizens’ access to the fixed broadband Internet ( 2010)**



Source: European Commission report on the EU telecommunication market, Report no 15 (Progress Report on the Single European Electronic Communications Market – 15th Report, COM(2010)XXX.

Underdevelopment of broadband infrastructure is nowadays one of the main barriers to social and economic development of the country, especially in underdeveloped provinces of Eastern Poland. It is a fundamental barrier to modernization of regional economies aiming at building knowledge-based economy. In the case of Eastern Poland we deal with both very limited availability of broadband connections as well as with local variation in access to those links. It should be borne in mind that the rate of 13.5% referring to the Polish broadband availability is the average value for the whole country. In practice, locally, there are very significant disproportions in access to fixed broadband connections. Traditionally, well-developed provinces as well as large urban centres are in the best situation.

<sup>16</sup> Data of the Office of Electronic Communications.

**Map 1. Polish provinces residents' access to the fixed broadband Internet (2010)**



Source: The Office of Electronic Communications (based on data from the European Commission).

And so, Masovian Voivodship has the highest rate of access to broadband connections, where 16% of the population is connected to a fixed network. The lowest rates are in Poland's eastern provinces, specifically Świętokrzyskie Voivodship (2.1 %). In the Province of Lublin it is only 3.8% of the population<sup>17</sup>. Access to a broadband Internet network in Lublin province is in practice even lower than the estimated 3.8%, because the average calculated for the province is diluted by urban centres. In rural areas, a broadband network has been almost nonexistent until recently. Given such a large-scale exclusion in this field, it can be concluded that Lublin Province is still, to a large extent, a digital backwater of the country<sup>18</sup>. It directly influences the developmental possibilities of the Lublin region, including the possibility of building innovative and competitive knowledge-based economy. A similar situation, albeit to varying degrees, also takes place in the other provinces of Eastern Poland. Recently implemented projects related to the development of a broadband network in the area of our interest will gradually limit the level of digital exclusion, however, differences in access to the Internet, especially to the broadband Internet, between rural and urban areas within individual provinces can effectively keep these backwardness for many years. This situation is very unfavourable for the development of the Province of Lublin and that is why local governments should treat investments in the expansion of modern broadband networks as absolute priority.

<sup>17</sup> Data of the Office of Electronic Communications.

<sup>18</sup> This situation is slowly changing as a result of the implementation of the telecommunication infrastructure investments co-financed from the EU structural funds (2007–2013).

In the sphere of Polish companies' access to the broadband Internet regional differences in access to fixed high-capacity connections are clearly visible. According to data from 2008 only 58.7% of companies in Poland used the broadband Internet. In Polish eastern provinces only in Podkarpackie and Podlaskie Voivodships the access to it is at a satisfactory level. The worst situation in this respect is in Świętokrzyskie and Lodz Voivodships (below 50%). In Lublin Voivodship the rate we are interested in oscillates around 57%, which is not the worst result in the country, but it is too weak if we take into account the developmental needs of the voivodship, especially in the context of building modern and competitive knowledge-based economy and the necessity to increase the potential of the information society.<sup>19</sup>

An important component of the country computerization, which is pointed out by the authors of one of the recent government reports on Polish regional development, is the ability to use the Internet by business entities to make transactions and to contact public administration. In the case of commercial activities, until recently only a quarter of Polish companies have used the Internet in this way (23.6% of Polish companies in 2007)<sup>20</sup>. When it comes to contact with public authorities through the Internet, only 20.5% of Polish companies used the full service of administrative procedures (2007)<sup>21</sup>. Despite the progress in the field of public administration computerization, the percentage of basic public services fully available on-line in 2007 was more than two times lower in Poland than in the EU Member States (25% and 59% respectively)<sup>22</sup>.

**Table 2. The use of ICTs by enterprises in selected provinces of Poland (2008)**

Lp.	Voivodship	Access to a computer	Internet access total / broadband	Own www website	Trading by computer	Full support of administrative procedures via the Internet
	Poland	95.0	92.7—58.7	56.6	23.6	20.5
1.	Masovian	98.1	97.7—65.7	66.3	33.2	22.0
2.	Lower Silesian	94.0	91.2—61.3	56.6	23.6	21.2
3.	Greater Poland	94.4	92.3—53.1	50.5	16.8	18.5
4.	Lesser Poland	95.1	92.7—62.5	62.3	25.3	22.1
5.	West Pomeranian	94.6	91.9—57.4	55.1	21.2	18.1
6.	<b>Lublin</b>	<b>95.1</b>	<b>92.5—57.0</b>	<b>47.1</b>	<b>20.5</b>	<b>20.6</b>
7.	Podkarpackie	94.2	91.4—60.7	51.1	21.5	21.4
8.	Podlaskie	94.0	91.1—59.2	59.5	22.6	22.6
9.	Świętokrzyskie	93.9	90.2—48.0	43.2	19.1	19.8
10.	Warmian-Masurian	93.2	90.4—52.5	47.7	14.7	18.5

Source: *Regional Development in Poland. Report 2009*, Ministry of Regional Development, Warsaw 2009, p. 92 (based on the data and studies of the Central Statistical Office).

<sup>19</sup> Data from the Central Statistical Office regarding the use of ICTs in Polish enterprises.

<sup>20</sup> The largest number of such companies are located in Mazovian Voivodship, 33.2% and in eastern Poland Voivodships (eg. in Warmian-Masurian and Świętokrzyskie Voivodships this rate oscillates below 20%).

<sup>21</sup> It is surprising that the majority of these companies were in Podlaskie Voivodship (22.6%), and the least in West Pomeranian, Opole, Warmian-Masurian, Greater Poland, Silesia, Lodz and Świętokrzyskie Voivodships (below 20%).

<sup>22</sup> See *Regional Development in Poland. Report 2009*, pp. 90–93.

The unfavourable situation in terms of access to broadband Internet connections is saved, but only marginally, by mobile telephony operators' increasingly better offer for the mobile Internet, however it is not a solution that can provide a basis for the development of the information society in less urbanized areas (prevailing in Eastern Poland). Thanks to the mobile Internet the accessibility to a broadband network has improved slightly in recent years. In 2009 5% of Polish population used this type of Internet access.

#### **4. Support for the development of the information society and its infrastructure in the Lublin region in 2007–2013**

*The Act on Supporting the Development of Telecommunications Networks and Services*, which entered into force on 17 July 2010 (the so-called Mega Act) has great importance for the development of telecommunication infrastructure in Eastern Poland, and thus for the dissemination of broadband networks underlying the functioning of the information society<sup>23</sup>. Its adoption aimed at providing a legal basis by which it is possible to ensure universal access for citizens to advanced telecommunication services, especially the broadband Internet. The Act provided much-needed legal regulations conducive to investments connected with telecommunication and ICTs, while contributing to greater competition in the domestic telecommunication market.

The Mega Act greatly supported local government units and enterprises carrying out public utility tasks in the implementation of local telecommunications investments. Telecommunications activities currently belong to duties of local government units. Local governments notice that investments of this type are important for their development, especially in underdeveloped regions. At present, a public telecommunications network operator is obliged to take account of legitimate requests of local governments to provide telecommunications access. One of the most important provisions of the Act are facilitations for the location of a particular form of investment, which are regional broadband networks. Legal solutions resulting from the Mega Act contribute to the activation of local government units in the activities connected with telecommunication. Supporting local governments' telecommunications investments co-financed from the EU structural funds has now become aligned with the interests of businesses which operate in the telecommunications industry. The situation in the telecommunications market is changing slowly for the benefit of local communities benefiting from the biggest competition in the telecommunication service

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<sup>23</sup> Journal of Laws dated June 16, 2010, No. 106, item. 675.

market and the resulting better access to the latest technology and technical progress of the domestic telecommunications industry.

The importance of ICTs for socio-economic development, especially in underdeveloped regions, impelled the state authorities to preferentially treat activities related to the dissemination of these technologies. This applies in particular to broadband Internet access. In preparing operational programmes to support the Structural Funds in the programming period 2007–2013 care was taken to extract the relevant amount of funds for infrastructure projects related to the expansion of the national telecommunications network serving both economy and society. Of key importance for the extension of this network, and especially the broadband network and thus the development of the information society in Poland's eastern provinces is the Operational Programme *Development of Eastern Poland in 2007–2013 (OPDEP)*, and specifically the Priority Axis II – *Infrastructure of the information society*<sup>24</sup>.

The main objective of the *OP Development of Eastern Poland (OPDEP)* is to accelerate the pace of socio-economic development of Eastern Poland in accordance with the principle of sustainable development. It is realised through the implementation of a number of specific objectives, among which there is also a demand for increased access of citizens, institutional and economic entities to the broadband internet in this area. Priority Axis II of the OPDEP encompasses one action—II.1 *Broadband network in Eastern Poland* which is aimed at providing access to broadband services to public institutions, businesses and residents of eastern Polish regions at risk of digital exclusion (Voivodships: Warmian-Masurian, Podlaskie, Lublin, Świętokrzyskie and Podkarpackie)<sup>25</sup>. It concerns projects, investments related to the construction of a supra-regional backbone network that will enable the use of the broadband Internet (with access points in each municipality). A broadband network is poorly developed in this area, especially when it comes to small towns and rural areas. The problem of limited access to broadband connections is just one of the obstacles to the creation of the developed information society. Another problem, no less important in terms of Eastern Polish provinces, are the skills of advanced Internet usage by society, especially by some of its group, such as learning youth, business owners and individuals in the retirement age. In connection with the latter, the realisation of the Priority Axis II of the OPDEP aims at organising a broad educational campaign directed towards citizens who will be using the broadband infrastructure.

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<sup>24</sup> *Programme Development of Eastern Poland 2007–2013. National Strategic Reference Framework 2007–2013*, Warsaw: Ministry of Regional Development 2007.

<sup>25</sup> *Programme Development of Eastern Poland*, p. 85–87.

The need for the expansion of regional telecommunications infrastructure, which is necessary for the modernization of regional economy, has been recognized in the Lublin region for a long time. The local government of Lublin Voivodship expressed this in 2005 in preparation of the *Lublin Province Development Strategy for the years 2006–2020 (LPDS)*<sup>26</sup>. This document constitutes a basis for the development activities currently implemented in the region, including those pertaining to the information society. They are financed from both domestic and the EU Structural Funds. Insufficient advancement of the information society in Lublin Province is considered one of the most serious barriers to modernization and increasing of competitiveness of Lublin region economy, leading to the improvement of the living conditions of inhabitants of this region.

The primary purpose of LPDS is “to achieve sustainable socio-economic development of the Lublin region by increasing the competitiveness of Lublin province and the optimum use of its internal developmental potential”<sup>27</sup>. Activities undertaken under the strategy are aimed at launching a series of long-term development processes in the region, which will allow the Lublin region to enter the path of stable and sustainable development. One of the ways of achieving these objectives is the expansion and modernization of regional telecommunications infrastructure while supporting the development of the information society. According to the vision of the future of the Lublin region presented in the *LPDS*, the province should become a region of competitive economy, a region of modern knowledge-based society, attractive and territorially coherent, as well as effectively managed and open to international cooperation<sup>28</sup>.

In view of the issue of information society development in the Lublin region, which is particularly interesting for us, attention should be directed to the LPDS provisions pertaining to it and related supporting activities and specific projects that are aimed at developing the regional telecommunications infrastructure which constitutes the foundation of the

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<sup>26</sup> *Lublin Province Development Strategy for the years 2006–2020*, Lublin: the Board of Lublin Voivodship 2005, vol. I (Conditions and diagnosis of the initial state), vol. II (The objectives and priorities of the strategy and the implementation system). In 2009 an update of the *Strategy* volumes I and II was published. The Voivodship local government was obliged to prepare the strategy by – *The Act on Voivodship Local Government* of 5 June 1998 (Journal of Laws no 91, item. 576). *LPDS* was adopted by the Provincial Assembly of Lublin no XXXVI/530/05 of 4 July 2005.

<sup>27</sup> *LPDS*, updated, vol. II, p. 33.

<sup>28</sup> See *LPDS*, updated 2009, vol. II, pp. 27–32, the *LPDS* formulates four development priorities of Lublin Province: 1. Increase of regional economy competitiveness and its ability to create workplaces; 2. Development of modern society and human resources adjusted to the requirements of knowledge based economy; 3. Improvement of the attractiveness and territorial cohesion of the province; 4. Development of interregional cooperation and improvement of the effectiveness of the implementation of the regional development policy (see *LPDS*, vol. II, 2009, p. 33).

information society. According to the LPDS assumptions, the main determinants of the information society in the given area are an extensive telecommunications network covering all its citizens, and information resources accessible to the public. The LPDS states that the broadband ICT infrastructure functioning in the Lublin region does not cover the whole province and is, therefore, considered rudimentary. The strategy authors also note that there is deficiency of access solutions accompanying this infrastructure which would allow for free development of a telecommunications network. Due to high cost of access to the existing infrastructure, the possibility of using the broadband Internet is limited, both for individual and institutional users, as well as for business entities operating in the province.

A survey conducted in early 2007, the results of which are included in the LPDS, indicate that the range of public services provided electronically is insufficient for the proper functioning of the information society. This applies in particular to local government units, which:

- have only basic tools of electronic communication, such as an e-mail and website;
- mainly provide only passive, one-sided electronic services consisting of the provision of information and model forms of documents;
- official electronic communication in the direction citizen-authority is possible only in approximately 40% of cases;
- electronic identification of clients is not implemented (2007).

Therefore, it was concluded in the LPDS that electronic services provided by the Province of Lublin local government, as the primary manifestations of the advanced information society, are at an initial stage of development and encompass only simple, passive ways of using telecommunications techniques in communication with the region residents. Changing the status quo is associated with fundamental expansion of telecommunications infrastructure, improvement of access to it (especially to broadband connections), as well as a new approach to tasks and functioning of the administration and the creation of well secured integrated information resources. The implementation of actions planned in the strategy will contribute to the development of innovative economy of the province (among others by better cooperation between academic and scientific-research centres) and the creation of a specialized service market, not only of a public (commercial) nature, and also the emergence of new spheres of economic activity.

The development of the information society and related infrastructure is included in Priority I of the LPDS *Increase of regional economy competitiveness and its ability to create*

*workplaces*, Objective 1.6: *The development of the information society* <sup>29</sup>. The LPDS recognizes insufficient development of the information society as one of the barriers to economic development of the province and to the construction of economy based on knowledge and information. In the region, a publicly available broadband network is practically nonexistent. There is deficiency of access solutions accompanying this kind of infrastructure. As a result, the Lublin region is characterized by a low level of use of information technologies in schools, public administration, households and businesses. In order to change the described state of affairs, the LPDS proposed activities that will contribute to the gradual improvement of broadband access and the development of the related range of services characterizing the modern information society.<sup>30</sup> Activities of the province local government and businesses engaged in these activities, implemented with the participation of the EU structural funds by the end of the current programming period 2007–2013 (namely 2015), are supposed to be directed towards:

- development of basic information infrastructure in the region, which will enable universal and cheap access to information resources (building a backbone broadband network, extension of an access network on the local level, support for public access to the Internet in each municipality);
- creation of a broad and valuable offer of electronic services (digitization and dissemination of documentation, archives, cultural heritage, development of strategic educational, advisory and administrative services);
- development of telemedicine (creation of call centre networks, provincial health system databases, introduction of information management systems, including quality management in health care);
- stimulation of the development of electronic business (e-commerce support, computerization of business activities, development of services using an electronic signature);
- computerization of public administration and development of public services rendered electronically (creation of internal computer networks and standardized internal computerization systems of institutions).

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<sup>29</sup> LPDS, vol. II, pp. 45–46.

<sup>30</sup> The indicators helping to assess the implementation of this policy will be as follows: the length of the public broadband network, the share of households with a personal computer and Internet access, the number of public Internet access points, the number of entities included in the standardized information systems.

## 5. Project *Broadband Network of Eastern Poland*

One of the most important projects supporting the development of the information society and closely associated telecommunications infrastructure in Lublin Province is the project *Broadband Network of Eastern Poland* currently implemented under the auspices of the Ministry of Regional Development (*BNEP*)<sup>31</sup>. It aims to ensure broadband access for 90% of households and 100% of public institutions and businesses in five Polish eastern provinces by the end of 2013. One of the main infrastructure problems in the area is a limited range of existing telecommunications networks, and also technical maladjustment of a subscriber network of fixed telephony operators to the realization of broadband services.

Moreover, market realities related to the functioning of the domestic telecommunications market act to the disadvantage of Internet users in Eastern Poland. According to telecommunications operators, required telecommunications investments are not viable from an economic point of view, especially in areas not covered so far by a broadband network, as well as in areas which are sparsely populated or inhabited by people with low income. With this telecommunications operators' approach to issues of interest to us, residents of Polish eastern voivodships, including a large part of Lublin province, would have no chance of obtaining in a foreseeable time perspective access to modern, cheaper, fixed broadband infrastructure, which underpins the functioning of the information society. Only the project *Broadband Network of Eastern Poland* gave a chance to change this unfavourable situation, directly influencing the possibility of socio-economic development and the information society development in Eastern Poland.

The *BNEP* project includes building ICT infrastructure supplementing the existing infrastructure and the development of regional backbone networks in five provinces of Eastern Poland which are at risk of digital exclusion (in accordance with the principle of technological neutrality, i.e. without favouring any specific technologies). From a technical point of view, the best option for regional backbone networks are optic fiber connections. They are included in the *BNEP* project which also schedules primarily the extension of fiber optic networks in order to bring the location of optical network nodes closer to the end user without duplication of existing fiber optic lines. The investment scope was specified separately for each district of the five voivodships of Eastern Poland. Networks installed

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<sup>31</sup> The project *Broadband Network of Eastern Poland* has been prepared for five Poland's eastern provinces and is being implemented in these voivodships. The total value of all investments under *BNEP* is:

1 453 499 132.23 PLN (EU funding: 1 017 361 329.27 PLN, including: Lublin Voivodship: 388 754 036,07 PLN (EU funding UE 271 855 701.26 PLN); Podkarpackie 296 033 485,25 PLN (207 255 317.5 PLN); Podlaskie 252 358 083.25 PLN (176 825 734.13 PLN); Świętokrzyskie 202 159 758.13 PLN (EU funding 141 687 329.74 PLN); Warmian-Masurian 314 193 769.53 PLN (EU funding 219 737 246.64 PLN).

under the project will be open to all telecommunications companies that provide broadband services directly to end users, such as residents, businesses and institutions in the area of Eastern Poland. This allows commercial entities to build now their own access networks in areas that have been so far unattractive for them from the investment point of view.

As a result of *BNEP* realisation minimum 90% of households and 100% of public institutions and enterprises in Polish eastern provinces will obtain guaranteed access to broadband transmission with the speeds of at least 6 Mbit / s downstream (download) and 1 Mbit / s upstream (upload). The activities carried out in parallel to this project should provide the remaining households (10%) with access speed of 1 Mbit / s “to the user” and 144 kbit / s “from the user”. The *BNEP* project is funded by the OPDEP and budgets of voivodships covered by the project. Its value is determined to be 1 453 499 132.23 PLN. The project is funded largely from the EU Structural Funds (ERDF contribution of 1 017 361 329.27 PLN). It is expected that additional funds, that are comparable to the total budget of the project, will be invested by commercial operators who will want to participate in the expansion of complementary, access networks.

Cooperation between local governments of Eastern Poland voivodships and units of local governments, on the area on which the investments of interest to us are to be realized, is of key importance to the success of the *BNEP* project. Its principles, defining, for example, activities facilitating the implementation of investments, were recorded in the letters of intent which were signed at the end of 2007 and exchanged by the authorities of the individual provinces with the relevant local authorities,. The *BNEP* project is a project jointly implemented by local governments of the five Eastern Poland voivodships, although each of the voivodships in this group will pursue only their own part of the constructed backbone network. Feasibility studies for individual provinces were prepared by the Ministry of Regional Development. At present (autumn 2011) the *BNEP* project feasibility studies are being submitted by the indicated ministry to provincial governments participating in the project. Provincial governments and businesses involved in the project had to prepare themselves very carefully for the implementation of the project by fulfilling all formal and legal conditions connected with such a complex infrastructure investment (including preparation of documents necessary for investments related to construction, regulating the ownership of land on which the activities will be implemented, respecting environment protection regulations and NATURA 2000 protected areas). The completion of preparatory work for the implementation of the *BNEP* project is scheduled for 2012. The *BNEP* project will be implemented till the end of the Financial Perspective 2007–2013, but due to the size

and complexity of the investment it will be completed probably around 2015, which is allowed under the current rules of structural funds disbursement (for years 2011 to 2013 the n+2 rule).

### **Final remarks**

Strengthening of the Lublin province information society infrastructure potential will take place as a result of the joint implementation of several projects, mainly dealing with infrastructure. Undoubtedly, one of the most important of these is the project *Broadband Network of Eastern Poland (BNEP)*, the goal of which is to make up for the backwardness in access to broadband network infrastructure which is the biggest exactly in Polish eastern areas. The project implementation will allow for much greater than today use of the possibilities of the most important contemporary medium, which is the Internet, both in the case of local governments, households, businesses and educational institutions in the area of interest to us.

The majority of activities and investments mentioned in this study, including the key *BNEP* project, would not have been realized without the financial support of the EU which recognizes the importance of well-developed broadband infrastructure for socio-economic development of the Community, and particularly of underdeveloped regions. Presented in **Appendix 1** a list of projects fundamental for the Lublin province information society development is supposed, in the author's intention, to give a proper idea of the scale of infrastructure expansion of interest to us in the programming period 2007–2013, as well as to show what directions (→ kinds of projects) are currently dominant within this extension, which largely reflects the real needs of businesses and Lublin province local governments related to telecommunications infrastructure.

The development of the information society is of course not just a matter of extending the infrastructure, but also of many other types of activities undertaken by business or institutional entities aiming among others at the promotion of various kinds of technical and organizational facilities for the public and administration, and education in the field of information technologies. However, it should be noted that in the case of underdeveloped regions, where the biggest backwardness pertains to telecommunications infrastructure, its expansion should be considered absolute priority. For this reason, this study is focused on supporting the development of telecommunications infrastructure, including broadband connections.

On October 6, 2011, the European Commission presented a legislative package for cohesion policy for 2014–2020.<sup>32</sup> The new EU budget is supposed to be 972.2 billion (the budget for 2007–2013 was 925.6 billion). As proposed by the European Commission, funds for the implementation of cohesion policy for the period 2014–2020 should not be reduced, they even should increase slightly when compared to the previous period from 348 to 376 billion euro (35.7 %–36.7 %). The amount of structural funds intended for Poland is also to increase from 68 to 80 billion euro. All evidence points to the fact that in the period 2014–2020, Poland will continue to be the biggest beneficiary of the EU support, including the support under the EU cohesion policy. It will have great significance for the development of Polish regions, and thus the Lublin region, forced to modernize its economy and improve its innovativeness and competitiveness. From the Polish accession to the EU in 2004, the development of underdeveloped regions of Eastern Poland has been stimulated mainly by the Community cohesion policy and its associated funds and assistance programmes.

At the beginning of the new programming period 2014–2020, funds from the previous budget of the Community will still be used, those which are involved in the projects started after 2010 in accordance with the rule  $n+2$  (one of examples is the *BNEP* project the realization of which will finish around 2015). Taking into account development priorities of the EU in the next financial perspective resulting from the implementation of a new strategy for development of the Community, Strategy “Europe 2020”, including focus on economic growth, competitiveness and innovation in economy, we can be sure that the 2014–2020 period will be conducive to the development of the information society, including the expansion of the infrastructure necessary for this purpose. This direction will be probably taken by new national and regional Operational Programmes which will take into account the specific developmental needs of Polish eastern voivodships, including the Lublin region.

An additional interesting instrument which could support the development of the information society in the Lublin region in 2014–2020, may be a transport fund “Connecting Europe” planned in conjunction with the need for modernization of the Community’s transport infrastructure. It is supposed to be a fund supporting infrastructure projects, specifically projects in the field of transport, energy and ICTs, addressed to all members of the community, including the countries which do not qualify for support under the EU cohesion policy.<sup>33</sup> The support of this type can be of great importance for Poland, especially

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<sup>32</sup> See [http://ec.europa.eu/regional\\_policy/what/future/proposals\\_2014\\_2020\\_en.cfm](http://ec.europa.eu/regional_policy/what/future/proposals_2014_2020_en.cfm) (date of access 25.05.2011).

<sup>33</sup> The fund “Connecting Europe” with the planned budget of 50 billion euro replacing the existing funding for the development of trans-European transport networks.

for regions like Lublin Voivodship, which has poorly developed infrastructure, including telecommunications infrastructure, but at the same time has experience in the implementation of large cross-border projects<sup>34</sup>.

Negotiations related to the preparation and adoption of the EU budget for 2014–2020 will not be easy due to the difficulties faced by the Community (effects of the global financial and economic crisis, the crisis in the euro zone) and will probably finalize at the end of 2012

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<sup>34</sup> According to Danuta Huebner, former Commissioner for Regional Policy of the European Union, at this point the rules for financing the transport fund, to which cohesion policy funds allocated for infrastructure are to be included, are not entirely clear. Poland, as well as other young members of the EU, the main beneficiaries of this aid, would have to give back some of the structural funds to the management of an agency coordinating the new fund, to which they do not want to agree. In the case of difficulty in reaching a consensus, the aid in question can be transferred by the Community to the support of other projects, see an interview with D. Huebner in the monthly economic magazine “Forbes”, online edition dated. 22.09.2011 (<http://www.forbes.pl/artykuly/sekcje/wydarzenia/huebner--powalczmy-o-ponad-300-mld-zl,19692,1>).

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## Appendix 1

The list of projects supporting the development of the information society infrastructure in the Province of Lublin in 2007–2013:

### **I. Projects implemented under the Operational Programme *Development of Eastern Poland*, Priority Axis II: Infrastructure for the information society, Action II. 1 *Broadband Network of Eastern Poland*<sup>35</sup>:**

1. The presented project “Broadband Network of Eastern Poland” (the total investment value in the project 1 453 499 132.23 PLN), the project carried out in the five voivodeships of eastern Poland (Warmian-Masurian, Podlaskie, Lublin Voivodship, Świętokrzyskie and Podkarpackie).

### **II. Projects implemented under the *Regional Operational Programme for Lublin Province for 2007–2013*, Priority Axis IV “Information Society”<sup>36</sup>:**

The list of projects selected for funding for Measure 4.1 “Information Society”, Category I: ICT infrastructure and service system at the regional level ROP LP for the years 2007–2013 – contest no 08/RPOWL/4.1/2009

1. “E-Government – Development of e-services platform for residents of Municipalities of Krasnystaw District” (total project value 3 445 243.40 PLN), the applicant Izbica Town.
2. “Development of an integrated information system for the sustainable development of the Bialski District” (6 831 630.00 PLN), the applicant – Bialski District
3. “Comprehensive computerization of Municipalities of Kraśnik District” (2 973 166.47 PLN), the applicant – Urzędów Municipality.
4. “Building of an integrated information society infrastructure in the district of Lublin” (8 541 108.58 PLN), the applicant – Lublin District.
5. “Construction of the Information society through computerization of local governments of the Zamość District” (3 122 565.60 PLN), the applicant – Łabunie Municipality.
6. “The infrastructure and information society services in the Catholic University of Lublin” (5 538 535.49 PLN), the applicant – The John Paul II Catholic University of Lublin.
7. “Virtual districts. Building the information society in Lublin Province Stage III” (30 113 127.40 PLN), the applicant – Łęczna District.
8. “Construction of electronic infrastructure and public electronic services of local government administration in the municipalities of Wąwolnica, Wojciechów, Markuszów, Baranów” (2 095 097.52 PLN), the applicant – Wąwolnica District.
9. “Chełm E-District – development of electronic public services in Chełm district” (8 473 905.62 PLN), the applicant – Chełm District.
10. “Sustainable development of the information society of Janów District” (5 369 873.00 PLN), the applicant – Janów District.
11. “Comprehensive computerization of Łuków District and Kłoczew Municipality” (5 727 587.18 PLN), the applicant – Łuków District.
12. “Włodawa E-District” (5 133 548.68 PLN), the applicant – Włodawa District.
13. “New technologies – improved quality of public online services in Hrubieszów District” (5 017 421.20 PLN), the applicant – Hrubieszów District.

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<sup>35</sup> See the website of Marshal's Office in Lublin dedicated to *BNEP* ([www.lubelskie.pl](http://www.lubelskie.pl)).

<sup>36</sup> See the website of *Regional Operational Programme for Lublin Voivodeship for 2007–2013* ([www.rpo.lubelskie.pl](http://www.rpo.lubelskie.pl)).

14. "Regional Broadband Network Northeast Lublin" (12 516 896.00 PLN), the applicant – Parczew District.
15. "Modern University as a system of e-services for the information society of the Province of Lublin" (5 482 216.01 PLN), the applicant – University of Life Sciences in Lublin.
16. "Puławy in the network – the construction of broadband telecommunication networks and services" (16 278 463.45 PLN), the applicant – Puławy Town.
17. "Safe Lublin Province" (19 744 800.00 PLN), the applicant – Lublin Province Police Headquarters.
18. "Computerization of Maria Curie-Skłodowska University in Lublin (stage 2)" (4 377 879.78 PLN), the applicant – Maria Curie-Skłodowska University in Lublin.

The list of projects selected for funding from the European Regional Development Fund under Measure 4.1 Information society, Category II ICT infrastructure and service system at the local level ROP LP for the years 2007–2013 – contest no 09/RPOWL/4.1/2009

1. "Computerization of Szczebrzeszyn Municipality" (the total value of the project 1 094 950.00 PLN), the applicant – Szczebrzeszyn Municipality.
2. "Wireless service and electronic handling of issues in the Catholic University of Lublin" (1 919 777.75 PLN), the applicant – The John Paul II Catholic University of Lublin.
3. "Expansion of information and communication system for rescue and fire fighting in the districts of Janów, Kraśnik and Świdnik" (473 094.40 PLN), the applicant – Janów Lubelski District State Fire Service Headquarters.
4. "E-Dęblin – development of the information society" (1 965 000.00 PLN), the applicant – Dęblin Town.
5. "Ensuring the conditions for building the information society in Frampol Municipality thanks to developing welfare internet access network and an integrated information system offering perspective on-line services" (633 880.00 PLN), the applicant – Frampol Municipality.
6. "The dissemination of on-line services and free internet access in order to build the information society in rural Municipality of Chodel" (475 089.96 PLN), the applicant – Chodel Municipality.
7. "Building of an integrated information system for the sustainable development of Jozefow nad Wisłą Municipality" (587 202.00 PLN), the applicant – Józefów nad Wisłą Municipality.
8. "Supporting the development of the information society and increase of the availability of e-services in rural Municipality of Siedliszcze" (490 092.00 PLN), the applicant – Siedliszcze Municipality.
9. "Removal of barriers preventing the information society development in rural Municipality of Wilków" (561 380.00 PLN), the applicant – Wilków Municipality.
10. "E-government – the development of public on-line services with the provision of free Internet access in the center of Lubartów" (714 845.99 PLN), the applicant – Lubartów Town.
11. "Computerization of local government units of Parczew District – stage II" (1 983 573.60 PLN), the applicant – Parczew District.
12. "The introduction of electronic documents and the provision of electronic on-line services and organization of Public Internet Access Points for the residents of Ostrówek Municipality" (484 396.80 PLN), the applicant – Ostrówek Municipality.
13. "E-Municipality – the construction of public information society infrastructure in Milejów Municipality" (1 996 735.00 PLN), the applicant – Milejów Municipality.

14. "Urban broadband backbone network in Lublin – stage I" (1 777 372.10 PLN), the applicant – Lublin Town Municipality.
15. "E-Municipality – the development of information society infrastructure of Zamość Municipality" (1 015 300.00 PLN), the applicant – Zamość Municipality.
16. "We are building the information society in the municipalities of Kock, Jeziorzany, Michów" (1 866 563.40 PLN), the applicant – Kock Municipality.
17. "E-Kraśnik" (1 935 750.00 PLN), the applicant – Kraśnik Town Municipality.
18. "Computerisation of Niedzwica Duża Municipality" (445 194.80 PLN), the applicant – Niedzwica Duża Municipality.
19. "Building of a telecommunications network with the system of the cheap internet for the residents of Chełm" (1 889 833.07 PLN), the applicant – Chełm Town.
20. "Electronic Authority – the development of public e-services in Nałęczów Municipality" (425 740.00 PLN), the applicant – Nałęczów Municipality.
21. "E-district II – Expansion of IT infrastructure supporting the implementation of public tasks in units of Krasnystaw District" (1 957 717.47 PLN), the applicant – Krasnystaw District.
22. "Building the Information society in Goraj Municipality by dissemination of modern ITs" (779 481.33 PLN), the applicant – Goraj Municipality.
23. "Public e-services as a source of the increase of standards in services for residents of Józefów Municipality" (845 216 .00 PLN), the applicant – Józefów Municipality.
24. "Creation of an information system linking public libraries in Puławy District" (878 995.00 PLN), the applicant – Puławy District.
25. "E-Town Zamość" (1 977 812.86 PLN), the applicant – Zamość Town.
26. "E-Municipality Rejowiec – a platform for electronic services for the residents of Rejowiec Municipality" (331 580.01 PLN), the applicant – Rejowiec Municipality.
27. "ICT infrastructure of Zamość District" (1 250 000.00 PLN), the applicant – Zamość District.
28. "Development of an integrated information system for the sustainable development of Bychawa Municipality" (1 067 061.20 PLN), the applicant – Bychawa Municipality.
29. "Building a local broadband internet network to combat information exclusion of residents of" (972 992.70 PLN), the applicant – Potok Górny Municipality.
30. "Expansion and modernization of the information society infrastructure in Borki Municipality" (235 524.10 PLN), the applicant – Borki Municipality.
31. "Building of electronic administration in rural Municipality of Ułęż" (298 240.00 PLN), the applicant – Ułęż Municipality.

**III. Key projects implemented under the Regional Operational Programme Lublin Province in 2007–2013 – basic list of key projects<sup>37</sup>:**

1. "Construction of Regional Spatial Information Infrastructure" (total approximate value of the project 16.92 million PLN), the beneficiary – Lublin Province.
2. "Lublin Virtual Library" (19.81 million PLN), the beneficiary – Lublin Province.
3. "Gate to Lublin Province – Computerization of Administration" (44.59 million PLN), the beneficiary – Lublin Province.

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<sup>37</sup> See the website of Regional Operational Programme for Lublin Voivodeship for 2007–2013 ([www.rpo.lubelskie.pl](http://www.rpo.lubelskie.pl)).