
A practical perspective on the developing information society – case studies

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Abstract

The aim of this paper is to identify the projects implemented in Poland, which exemplify the “best practices” for the information society development in other regions and countries. Firstly, a definition of the information society is proposed, the key links and strategic objectives are identified. Secondly, the information society projects implemented in Silesia, Poland are presented. The first project concerns information and communication technologies’ infrastructure, the second one – digital content and services. This paper concludes with some discussion concerning the projects for the information society development.

Keywords: Information society; ICT infrastructure; Digital services; E-services; Digital content; Silesian Regional Backbone Network; Silesian Public Services Card

Introduction

Information as well as information and communication technologies (ICT) are the determinants of permanently ongoing social and economic changes. Information has become a resource needed for the functioning of societies and on a par with other resources (material, financial ones) which development it codetermines (Cheng, 2011; Hesse, Muller, & Ruß 2008; Nolin, 2010; Robertson, 1990; Rowley, & Gibbs, 2008). Whereas ICTs support exploration and exploitation of information, thus they enhance its acquisition, collection, transformation, availability and use (Adler et al., 2009; Avgerou, 2010; Hanna, 2010a; Kassicieh, 2010; Lavie, Stettner, & Tushman, 2010; Lavie & Rosenkopf, 2006; Żelazny, 2009; Ziemba & Olszak, 2011; Ziemba, 2013b). Information and ICT are essential for the development of the information society (IS), which were called by Toffler (1980) the third wave in the development of civilization (Mansel, 2009; Mansel, 2010; Roztocky & Weistroffer, 2009). Many countries, regions and cities embraced the building of the information society into their strategic planning (International Telecommunication Union, 2011; International Telecommunication Union, 2012). Also in Poland, both at the central and regional levels, various initiatives and projects aimed at the development of the information society are undertaken (Ministerstwo Spraw Wewnętrznych i Administracji, 2008; Samorząd Województwa Śląskiego, 2009).

The aim of this study was to identify the projects implemented in Poland, which exemplify the “best practices” for the information society development, especially in other European Union regions and countries. According to statistical data most of EU regions (in which GDP per capita is below 75% of the EU average) have major problems with the key issues of IS development (Eurostat, 2013). There is a lack of ICT infrastructure both in terms of quality and price. The

same issues concern e-services. The Silesian Region experiences identified and described in this paper might be worth considering while implementing IS projects in other EU regions.

This paper takes the following content. Firstly, a definition of the information society is proposed, the key links and strategic objectives are identified. Secondly, the information society projects implemented in Silesia, Poland are presented. These projects concern the information society identified links, namely: the information society actors (beneficiaries), ICT infrastructure and information. In addition, they refer to the two strategic goals of the information society: (1) the improvement of technical and economic availability of ICT infrastructure and (2) the increase in the quantity and usefulness of digital content and services.

The findings may be helpful in the designing and action taking aimed at the development of the information society at regional and national levels.

Theoretical Background – Essence, Key Links and Objectives of Information Society

Essence and Key Links of Information Society

The research on the information society was initially launched by the Japanese researchers who aspired to the role of IS demiurges. The following can be mentioned here: Kurosawa, Umesao as well as Masuda, Kohyama, and Hayashi (Karvalics, 2008). The enormous contribution to the development of the information society was also brought by American scholars such as: Bell (1973), Drucker (1993), Machlup (1962), Mansel (2009), Porat and Rubin (1977), Raban, Gordon, and Geifman (2011), Toffler (1980), as well as Webster (2002). Moreover, the observations made by Castells (1996, 1997, 1998) cannot be overlooked in the discussion about the information society. Also in Poland, the academics have been dealing with the issues of the information society for a few years (Babis & Czapiewski, 2011; Goliński, 2011; Hales, 2011; Oleński, 2006; Olszak & Ziemia, 2010; Papińska-Kaceperek, 2008; Szewczyk, 2007; Żelazny 2001). These researchers tackle many aspects of the information society in their studies, including: technological, economic, occupational, spatial, legal, and cultural to name a few (Webster, 2002).

Given the variety of approaches to the information society and the substantive context of this study, the following definition of the information society is proposed. The information society is a society in which people, enterprises and public administration have and use ICT to support the processes of exploration and exploitation of information to achieve collective and individual goals in an effective and efficient way. The key links in the information society are its actors (stakeholders), ICT infrastructure and information (Figure 1). The actors of the information society are people (citizens), enterprises and public administration. The ICT infrastructure mainly consists of computer networks, Internet, servers, computers and all kinds of stationary and mobile devices. Information in the information society means digital content and services.

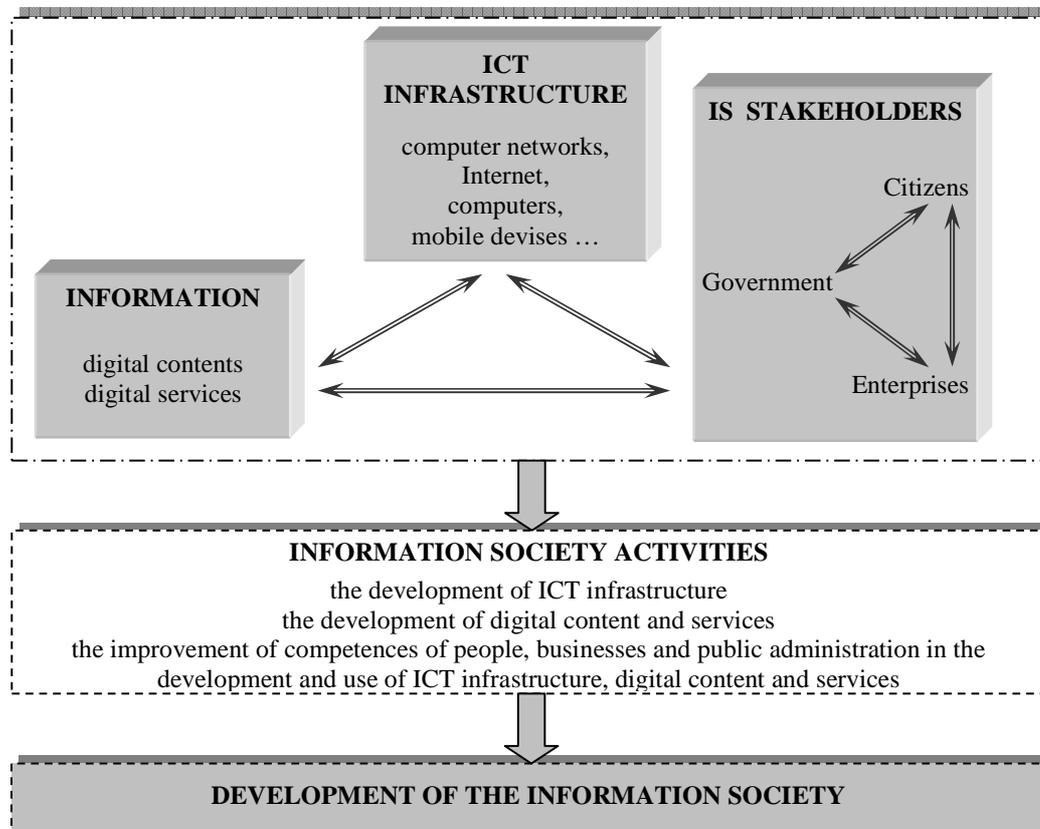


Figure 1: The key links in the information society (Ziemba, 2013a)

In the information society, the actions of people come down to the creation, assimilation and accommodation of information and its use to achieve their professional and personal goals. The dominant role is played here by knowledge workers and consumers who are increasingly becoming prosumers (Ziemba, 2013b; Tapscot & Williams, 2008). The proletariat is replaced by the digitariat. The digitariat has no influence over the information formation, but it can benefit from ICT and is governed by the media aristocracy, called the cognitariat (Eco, 1996). These changes require the permanent improvement of skills and continuous learning from individuals, and, in turn, they determine the development of a modern education system based on ICT.

In the information society, the widespread use of ICT by enterprises is necessary, but also the development of the sectors of the economy related to ICT, including e-business, e-services. Innovation, creativity and flexibility are the key factors of business efficiency and effectiveness, they become the prerequisite of enterprise development and of building the competitive position in the market. This, in turn, requires the exploration and exploitation of information (Adler et al., 2009; Lavie et al., 2010; Lavie & Rosenkopf, 2006;). Those processes are performed by knowledge workers and more increasingly by prosumers who use even more sophisticated ICT.

The development of the information society is not possible without a well-functioning public administration and an e-government in particular (Hanna, 2010b; Sahu, Dwivedi, & Weerakkody

2009; Ziemba, 2012; Ziemba & Papaj, 2012). The creation of e-government requires the increase of the ICT role in the public management. First of all, it is necessary to use ICT to rebuild internal processes of public administration and to provide public electronic services (e-services) (Aldrich, Berlot, & McClure, 2002; Anttiroiko, 2008; Hanna, 2010b; Sahu et al., 2009; Ziemba & Olszak, 2012; Ziemba & Papaj, 2012; Ziemba & Papaj, 2013). Given these observations, it should be assumed that a key role in the development of the information society is played by: the development of ICT infrastructure, the development of digital content and services as well as continuous improvement of competences of people, businesses and public administration in the development and use of ICT infrastructure, digital content and services (Figure 1).

The Strategic Objectives of Information Society Development in Poland and the Silesian Voivodeship

The discourse and efforts to build an information society in Poland started in 1994 (“Raport: Strategia,” 1994). However, not until the year 2000 the implementation of many projects began. The Polish accession to the European Union and granted financial support for the development of the information society had a great influence over the changes in this respect. The main instruments for financing were: the European Regional Development Fund (ERDF), European Social Fund and the Cohesion Fund. Within the framework of these funds such programs were launched as: Innovative Economy, Human Resources and Regional Programmes. The triad described above: actors of the information society – ICT infrastructure – digital content and services is reflected in the efforts undertaken for the development of the information society in Poland, both at the national and regional level. The main focus of actions taken is on the development of ICT infrastructure, the development of digital content and services as well as the improvement of the competence in the development and use of ICT infrastructure, digital content and services.

The basic document, still in force, dealing with in the development of information society is “The Strategy for the Development of Information Society in Poland until 2013” published by the Ministry of Internal Affairs and Administration in 2008 (Ministerstwo Spraw Wewnętrznych i Administracji, 2008). The strategy takes into account the priorities of the European policy in the field of information society based the Lisbon Strategy and the initiatives “eEurope. An Information Society for All” (Commission of the European Communities, 1999) and “i2010. A European Information Society for Growth and Employment” (Commission of the European Communities, 2005). There were set forth three strategic directions for the benefit of:

- Accelerating the development of intellectual and social capital of the Poles thanks to ICT and digital service (content) use (area: an individual);
- Increasing efficiency, innovation and competitiveness of firms and facilitating communication and cooperation between firms through the use of ICT and digital services (content) (area: an economy); and
- Increasing the availability and efficiency of public services through the use of ICT and digital service (content) to rebuild the internal processes of administration and method of service (area: a state) (Ministerstwo Spraw Wewnętrznych i Administracji, 2008).

The development of the information society and the accomplishment of the goals set out in “The Strategy for Development of Information Society in Poland until 2013” both require the active

involvement of the individual regions of the country (Żelazny, 2010). Thus, in April 2009, the Silesian Regional Assembly, after over a year works, passed a resolution on the adoption of the “Strategy for Information Society Development in Silesia until 2015” (Samorząd Województwa Śląskiego, 2009). The purpose of this document is to create and integrate the initiatives and projects for the development of the information society. According to the guidelines set out in the strategy for Poland, the document assumes the consistency of three dimensions:

- Civic (citizens' willingness to use ICT infrastructure as well as digital content and services);
- Public administration (transformation of voivodeship management and improvement of its efficiency through the use of ICT infrastructure as well as digital content and services); and
- Entrepreneurs (increasing competitiveness through the creation and use of ICT infrastructure as well as digital content and services) (Samorząd Województwa Śląskiego, 2009).

Five strategic objectives and lines of action to be taken to achieve these objectives were identified on the basis of this assumption (Table 1).

Table 1. Strategic goals and main activities of the information society development in the Silesian Voivodeship

| Goal 1 | Goal 2 | Goal 3 | Goal 4 | Goal 5 |
|---|---|--|--|---|
| To increase awareness and competence in use of ICT infrastructure and digital services (content) | To improve technical and economic accessibility of ICT infrastructure | To increase the amount and usefulness of digital content and services | To increase the participation of ICT in the economic development process | To improve e-development coordination and management |
| To activate circles being at risk of digital exclusion in terms of ICT | To coordinate actions related to expansion of ICT networks in the region | To expand inter-operational platforms of public e-services | To create favourable conditions for establishment and development of ICT companies | To give institutional support to entities responsible for IS development in the region |
| To disseminate the information society idea among inhabitants | To expand and modernise ICT infrastructure, ensuring quality control mechanisms | To promote and integrate electronic information and knowledge about the region | To support innovative solutions using ICT in business contacts | To support organisational and legal changes affecting the information society development |
| To create and develop tools for supporting initiatives, making it possible to increase competences needed for ICT infrastructure and digital services (content) use | To support actions aimed at increasing competitiveness in the ICT sector | | | |

Source: based on (Samorząd Województwa Śląskiego, 2009).

Further, selected projects carried out in the Silesian Voivodeship will be presented in this paper, which mainly refer to two strategic objectives: the improvement of the technical and economic availability of ICT infrastructure, and the increase in the quantity and usability of digital content and services. In particular, two of them can be seen as examples of “a good practice” for other regions and countries.

Research Methodology

The primary objective of the study required undertaking the cognitive-experiential works and the application of various research techniques. These were: critical review of literature, logical deduction, action research and case studies. In addition, an analysis of European and Polish documents and initiatives for IS development was performed.

This review of literature and analysis also included wide and rich analysis of US subject literature describing information society issues. However, the nature of information society projects financed by the European Union hinders simple transfer of American solutions to the EU countries and regions. Furthermore, information society development in the United States is based on the Silicon Valley model. In Poland and European countries, the Finnish model and the Singaporean model are rather used to create information society and implement IS projects (Castells & Himanen, 2002; Himanen, 2004; Ziemia & Olszak, 2012).

Action research in this case means collaboration with the Silesian Centre of Information Society (*Śląskie Centrum Społeczeństwa Informacyjnego*, ŚCSI). The ŚCSI is responsible for information society development in the Silesian Voivodeship in Poland. The scope of its responsibility covers: formulating a strategy of information society development, taking and coordinating actions leading to the achievement of strategic objectives of information society development as well as implementing and monitoring of activities related to information society development.

The overall purpose of a literature review was to critically appraise and synthesize the current status of knowledge relating to the information society and identify gaps in this knowledge that a new study would seek to address. This literature review referred to presenting the idea and definition of information society. In order to identify the key links in the information society we used a literature review, an analysis of different EU and Polish documents (initiatives) for IS development as well as action research and logical deduction. The purpose of the analysis of Polish documents (initiatives) for IS development also was to present the status of practical works on the information society development in Poland, especially in the Silesian Voivodeship. Additionally, the action research and case studies were applied in order to present the projects that exemplify the “best practices” for the information society development.

The Silesian Voivodeship was chosen because it is one of the most economically developed regions in Poland, but its GDP per capita was below the EU average in 2010 (67%, where EU-27 equaled 100, PPS – Purchasing Power Standard) (Eurostat, 2013). It is simultaneously characterized by both: the highest level of population density and industrialization in the country. The region has been well-known for heavy industry for many years and is undergoing transition

into an information region. Recently many new software companies, institutes of tertiary education, research and high technologies centers have been created here. Hence, not without reason, the Silesian Voivodeship is regarded as a strategic region for domestic as well as international investors. It is thought that its further expansion will be determined also by the development of information society that makes the region more attractive for citizens and businesses. Developing the information society has become a one of the priority issues for the Silesian Voivodeship.

Research findings – A Practical Approach to the Information Society Development in the Silesian Voivodeship

ICT Infrastructure Project – Silesian Regional Backbone Network

The appropriate level of development of IT infrastructure determines the development of information society. This paper focuses on projects for the development of broadband Internet access in the Silesian Voivodeship. This is due to the fact that in the Digital Agenda for Europe set the goal aiming at the provision of broadband access for citizens of the European Union by 2013, (European Commission, 2010). The very term *broadband access* (*broadband Internet access*) is ambiguous. In the studies conducted by the Central Statistical Office (GUS) the broadband access is defined on the basis of internet connections, i.e. Digital Subscriber Line (DSL), Asymmetric Digital Subscriber Line (ADSL), Symmetric Digital Subscriber Line (SDSL), etc. and other e.g. Internet connections in cable television networks, satellite access, fixed wireless connection (wireless network) (WWW1). The European Commission and Eurostat define broadband access pointing at the bandwidth equal to or greater than 144 Kb/s, using various types of links (WWW2). While OECD points at the bandwidth of 256 Kb/s (WWW3). In Poland, broadband access to the Internet is defined as access with the bandwidth of at least 2Mb/s (WWW4, European Commission, 2010). Due to the rapid development of technology, it seems reasonable to define broadband access not only by technical standards (type of connection and bandwidth), but by the ability to seamlessly take advantage of widely available digital content and services.

The essential undertaking for the development of broadband infrastructure throughout the Silesian Voivodeship is a project of *Śląska Regionalna Sieć Szkieletowa* (the Silesian Regional Backbone Network) (ŚRSS). The importance of this project for the region is due to its value, range and coverage. In terms of infrastructure, it is the largest project in the whole region financed by the EU. The total value of the project equals more than 20% of all infrastructure projects implemented in the region under the Regional Operational Programme for the years 2007-2013. The relevant data are in Table 2.

Table 2. The list of the top five projects for broadband infrastructure implemented under the Regional Operational Programme for Silesian Voivodeship 2007-2013, according to the value of the project in EUR

| No. | Project | Beneficiary | Total value | Amount funded by the EU |
|-----|---|-------------------------------|---------------|-------------------------|
| 1. | Silesian Regional Backbone Network | The Silesian Voivodeship | 16,524,839.79 | 11,408,489.39 |
| 2. | Building a broadband network for the city of Bielsko-Biala | The city of Bielsko-Biala | 7,817,683.80 | 6,444,411.50 |
| 3. | Building a broadband network for the information society in the Municipalities of Upper Silesia with Hot-spot access points | The city of Gliwice | 6,519,760.25 | 5,541,592.12 |
| 4. | Building Fiber Broadband Network for Zabrze - phase II and III - with the hot-spot point | The city of Zabrze | 6,220,523.36 | 5,287,444.86 |
| 5. | Development of the Information Society in the Zagłębie Dąbrowskie - Municipality of Sosnowiec | The municipality of Sosnowiec | 4,744,822.71 | 3,726,514.05 |
| n. | | | | |
| | | Total | 79,050,708.64 | 59,510,522.73 |

Source: based on Ministry for Regional Development (<http://www.mrr.gov.pl>).

The aim of ŚRSS project is to provide the optimal conditions for the development of telecommunications services through broadband. The result is the creation of the fiber-optic broadband infrastructure in the Silesian Voivodeship. It will ultimately enable to provide NGN/NGA services (the new generation) with the minimum bandwidth of 40 Mb/s (Śląskie Centrum Społeczeństwa Informacyjnego, 2012). The project must be implemented in accordance with the principles of technological neutrality, openness and accessibility according to the EU guidelines. Therefore it was decided to build the so-called passive fiber-optic backbone network. This model assumes providing a passive infrastructure, i.e. pipelines, duct systems, microduct systems and fiber-optic cables for all concerned telecommunications operators on equal basis. This will allow for the creation of a consistent infrastructure for fiber-optic backbone, distribution and access networks in the region. The actions undertaken in the design and implementation phases can be regarded as an example of good cooperation between sectors, i.e. local government administration (of voivodeship & local government units), government administration (the voivode) and telecommunications entrepreneurs.

The work on the project proceeded according to the following phases. The first phase was to make the inventory of the broadband infrastructure in the Silesian Voivodeship on order of the Silesian Centre for Information Society (2009 – inventory, 2010 – update of the inventory). Some areas lacking the infrastructure were identified. In addition, other areas where the infrastructure exists but due to high prices is not generally available to the citizens were also found. The second phase was to develop the Broadband Network Development Study in the Silesian Voivodeship (ŚRSS). The document sets the standards for network development,

priorities and directions of public intervention, together with the concept of building a network (Nizelski & Borys Consulting, 2009). In the third phase, the consultations of ŚRSS document with telecommunications operators and local government units were conducted. The consulted groups welcomed the presented proposals, including building of ŚRSS by the regional authorities. The fourth phase was the conduct of a broadband inventory update and development of detailed concept of the network construction. Based on this inventory there were identified the areas of intervention, the so-called “white” (in the traditional networks - min. 2Mb/s) and “white” and “gray” (in terms of NGN/NGA - min. 40MB/s). The fifth phase referred to other consultations of the network construction concept. The telecommunications operators and local government units took active part in them. The final adjustments to the concept of broadband network were made after these consultations. The sixth phase was expressing the consent of the Silesian Regional Assembly on the implementation of the ŚRSS (October 2010). After granting the consent, the seventh phase started, namely the development of three documents: the application form, the functional-utility program used to determine the planned costs of design and construction work - and the feasibility study of the project. In the eighth phase the pre-notification procedure was performed and the project obtained a positive opinion of the European Commission to grant financial support from public funds for the project. The usefulness of ŚRSS project was also confirmed by the positive opinion of the President of the Office of Electronic Communications (Śląskie Centrum Społeczeństwa Informacyjnego, 2012). During the ninth phase, as a result of the conducted competition procedure, the project was selected for funding under the Measure 2.1 of the Regional Information Society of the Infrastructure Operational Programme for the Silesian Voivodeship (December 2011). The funding for the project was set at EUR 11,408,489.39. The beneficiary of the project is the Silesian Voivodeship. Another important phase (10th) was to obtain a decision on the location of ŚRSS. This decision, in accordance with Article 50 of the Act to promote the development of telecommunications networks and services, is granted at the request of the voivode investor. This phase started in February 2012 and ended in December 2012. In parallel (in February 2012) the eleventh phase was launched - the process of notification of the project to the European Commission was opened. The process ended in obtaining a favorable decision in October 2012. At present subsequent works are carried out, namely: selection of the contract engineer, signing of an agreement for financing the project, selection of contractors and the final selection of the infrastructure operator. The entire project will be completed in 2015.

As a result of the accomplishment, ŚRSS is scheduled to deliver the following indicators of products and results:

- 495 km of backbone network,
- 58 backbone nodes,
- 5,735 institutions will have access to broadband Internet (except for schools),
- 199,674 small and medium-sized enterprises will have access to broadband Internet.

It is worth stressing the fact that ŚRSS is to serve as the connector and integrator for the different types of Internet networks, which already exist or are under the implementation by telecommunications operators and local governments. The implementation of ŚRSS broadband network will enable less developed regions of the region to the modern IT services. As a result, it will lead to the sustainable development of the information society.

Services and Digital Content Project – Silesian Public Services Card

The access to adequate ICT infrastructure quality is a prerequisite for the development of the information society in the region. However, for the rational utilization of the potential of this infrastructure it must provide the proper services and digital content. They should be public (e-government and e-government services) or commercial (e-business and e-services).

The largest project, in terms of its value, carried out in the Silesian Voivodeship in the area of e-government services is the Silesian Public Services Card (*Śląska Karta Usług Publicznych, SKUP*). The total cost of the project amounts to EUR 35,836,206.8 and the amount of funding from the European Union to EUR 23,496,650.9. This project is of the highest value in the area of e-government services, from among all projects conducted in Poland as a part of the Regional Operational Programmes in 2007-2013. The list of selected projects in the Silesian Voivodeship is presented in Table 3.

Table 3. The list of five major projects for e-government services carried out in the framework of the Regional Operational Programme for the Silesian Voivodeship 2007-2013, according to the value of the project in EUR

| No. | Project | Beneficiary | Total value | Amount funded by the EU |
|-----|--|--|--------------|-------------------------|
| 1. | Silesian Public Services Card | The Municipal Public Transport Association of Upper Silesian Industrial Region | 35,836,206.8 | 23,496, 650.9 |
| 2. | Urban Management System-Katowice Infrastructure for Spatial Information | The city of Katowice | 3,842,835.19 | 1,921,417.6 |
| 3. | Silesian Tourist Information System | Silesian Tourist Organization | 3,470,160.87 | 2,949,636.74 |
| 4. | Development and dissemination of the Electronic Communications System of Public Administration in the Silesian Voivodeship - SEKAP2 | The Silesian Voivodeship | 2,182,337.69 | 1,854,987.03 |
| 5. | Construction of the integrated management system of Mikołów District communes and Mikołów District based on the field information system (GIS) | The district of Mikołów | 2,171,702.33 | 1,845,946.98 |

Source: based on Ministry for Regional Development (<http://www.mrr.gov.pl>).

The importance of the accomplished project is not only connected with its financial dimension. Its scope and range should also be noted. The project is implemented in the central sub-region of the Silesian Voivodeship. The partners of the project are: the Municipal Public Transport Association of Upper Silesia Industrial Region (KZK GOP) and 21 cities (municipalities) of the Silesian agglomeration (Będzin, Bytom, Chorzów, Czeladź, Dąbrowa Górnicza, Gliwice, Imielin, Jaworzno, Katowice, Knurów, Mysłowice, Piekary Śląskie, Pyskowice, Radzionków,

Ruda Śląska, Siemianowice Śląskie, Sosnowiec, Świętochłowice, Tychy, Wojkowice, & Zabrze). At present, KZK GOP is an association of 25 municipalities and districts organizing everyday public transport services for about 1.2 million passengers, which represents about 60% of the whole traffic (WWW5). This is an open project and new entities can enter into it.

The aim of the project is to build an integrated system of collection and settlement of non-cash payments for public services, including: transportation, parking, recreation and sports, library, cultural. For these services the ŚKUP e-card will be used. The number of potential users of these services, assumed in the project, is 700 thousand people. This number does not indicate the final number of users. The estimates suggest up to about 1.5 million out of 3 million inhabitants of the central sub-region. The functionality of the e-card is flexible and there is a possibility of its extension. Currently, among the most important applications of e-cards are (WWW6):

- The carrier of public transport electronic ticket (periodical and one-way),
- E-purse (the service of so-called micropayments in public places, such as: museums, theaters, sports and recreation centers, parks),
- Carrier of CC SEKAP electronic signature facilitating contacts with authorities,
- User identification (optional for personalized cards).

Two types of ŚKUP e-cards will be in circulation, such as personalized and non-personalized (bearer) ones. The latter will not allow for saving user's data. Thus, it will not be used in the processes of user's identification, for example, while settling official matters or coding the right to relief, or registering individual season and subscription tickets.

The key results of the project are two data centers (CPD) - basic and supplementary. It is there that all the data reflecting the activity of ŚKUP users will be delivered and processed. In addition to CPD the following will be the results of the project:

- Consumer portal - an electronic platform for integrating its services,
- Consumer service points (40),
- Modules for charging fees and duties, cards top-ups and user's identification (about 6,000),
- Stationary machines for cards top-ups (about 100),
- Machines to collect parking fees (about 200),
- Other devices to operate the system (about 7,000),
- Personalized and non-personalized cards (about 700,000).

The most significant benefits associated with the implementation of the project should include standardized methods of payment for selected public services, regardless of the provider and the place of the provision. This, in turn, will make it easier to use the universal and repetitive services, such as parking, bus rides, errands of official matters. In addition, thanks to ŚKUP, it will be possible to acquire data on public services provided by the institutions that support ŚKUP and further the analysis of these data. The results of such analyses can be used to improve public services.

The implementation of the project relates to all kinds of problems and dangers. In particular, the following are worth mentioning:

- Incompatibility (lack of interoperability) of dedicated electronic cards, such as: urban, student, senior citizens (high costs of the preparation and implementation of each project individually,

- the limitation of the scope of use, the inability to cross-implement the already functioning applications),
- A high degree of complexity of the organizational integration of public services in the region with the highest ratio of urbanization in Poland,
 - Risk related to contactless transactions,
 - Lack of arrangements for the ŚKUP functioning after the assumed 65-month period of project maintenance.

It should be noted that it is still too early for the final evaluation of ŚKUP. Undoubtedly, it is a unique project on the national scale for public services at the regional level, but it should be kept in mind that it does not cover the whole voivodeship. It can be compared to London's Oyster and the Octopus in Hong Kong. Assuming that ŚKUP is implemented as planned, it will certainly achieve most of the above identified benefits. However, the functional potential of the card will depend on the involvement of many stakeholders, with particular emphasis on the end-users of public e-services. In the future, ŚKUP can be a contribution to the discussion that will initiate the concept of the National City Card.

Discussion

The trajectory of the information society development is marked, to a large extent, by projects related to the development of ICT infrastructure and digital content and services for satisfying the needs of three main actors: citizens, businesses and public administration. This fact was reflected in the policy documents for the information society development in Poland and the Silesian Voivodeship.

The appropriate action was taken along these documents. Many projects of broadband infrastructure, e-services and e-public services were implemented and are still being carried out with the use of the EU funds in the Silesian Voivodeship. Among them, the most interesting are projects of the Silesian Regional Backbone Network and the Silesian Public Services Card. Both projects are exemplification of “good practices” of the information society development. They can be helpful in designing and taking action, aimed at the development of the information society at the regional and national level. Importantly, in case of both projects ŚRSS and ŚKUP, it is worth emphasizing the practical implementation of the idea of a multi-stakeholder and cross-sectoral partnerships.

ŚRSS, created thanks to the public intervention, will enable the creation of a consistent broadband network throughout the region. The built telecommunications infrastructure within the frame of the ŚRSS project is the basis for building broadband networks by the backbone network operators. This infrastructure can also be used by telecommunications entrepreneurs – network operators of access and distribution networks. Thus it will result in limiting the economic and technical barriers to the development of local broadband networks.

Thanks to the access to the infrastructure with appropriate parameters the actors of the information society will be able to enjoy unlimited digital content and services. An important role in this area will have ŚKUP. Through its functionality, the card will facilitate the use of a wide range of public services for both the residents as well as business and tourist visitors to the

region. In addition to the benefits associated with the facilitation of their users, ŚKUP will also introduce opportunities for improvement for entities providing services within the frame of ŚKUP. Moreover, the project implementation of this scale may trigger the discussion on the concept of pan-Polish cards. Certainly, it will require multi-stakeholder and cross-sectoral partnerships over the political tenure and a currently common practice of many parallel and locally specified projects conducted simultaneously but independently.

Conclusions

Thanks to the information society development, countries and regions they may become attractive partners on the global and competitive market. Hence, the information society development has become a main priority for them.

The research shows recommendations regions and countries that are faced with transforming their society into information society. The recommendations cover:

- The information society development requires the improvement of the technical and economic availability of ICT infrastructure and the increase in the quantity and usability of digital content and services;
- ICT infrastructure and digital content and services should be develop for satisfying the needs of three main information society actors: citizens, businesses and public administration;
- The development of ICT infrastructure and digital services very often requires multi-stakeholder and cross-sectoral partnerships and cooperation; and
- The European Union countries and regions have to meet appropriate requirements to receive financial support for the development of ICT infrastructure and digital services.

Different case studies, especially “best practices” can be useful for regions and countries, especially from the European Union, that are faced with creating and developing the information society. For practitioners, these “best practices” suggest important issues for programming, building and developing the information society.

Generally speaking, it is very important to indicate (except main projects) critical success factors for successful development of information society. They can be useful for transforming a society into an information society. The critical success factors for information society will undergo further research.

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