The Information Society Development Strategy on a Regional Level

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Abstract

The article refers to issues related to creating the information society in a region. The most important results of research carried out to analyze the information society development in Silesia are presented in the background of the information society idea and all activities that are undertaken with reference to the information society in the European Union and Poland.

Methodology and obtained results of work undertaken to create the information society strategy for Silesia are presented. Much attention is paid to the SWOT analysis of the region in the context of information society strategies and to some analysis of the most important strategic objectives that make up the foundations of the information society in the region in question. Moreover, the methodology and outcome of work on identification of the information society strategy for the Silesian region are presented. Basic directions and projects related to the pursuit of the strategic goals of the information society development are shown. According to the Authors, it appears that the methodology outlined and the results achieved may prove helpful for other regions and public administration bodies, which are willing to walk the path towards the information society.

Keywords: information society, information society strategy, Silesian Voivodeship, Electronic Public Services Platform (PeUP)

Introduction

The 21st century is a period of economic, social and technological transformations that facilitate development of the new society that is referred to as the information society (Bell, 1973; Drucker, 1993; Tofler, 1980). It is worth adding that the very notion of the information society was firstly used in the sixties of the 20th century by a Japanese economist named Tadao Umesao who paid much attention to the role of information and technology in the development of civilization.

Literature of the subject provides different interpretations of the information society term. For the purpose of the research it is assumed that the information society is some society whose development is largely determined by utilization of information and knowledge and by diversified information and communications technologies (ICT). It is believed that in case of the information society, information is a fundamental resource and the national income generating source. Different computer related technologies including the Internet, microprocessors, biotechnologies, information technologies, cordless communications, hardware or software are intensively being developed. The information society is

provided with inexpensive methods of storing, transferring and processing of vast amounts of information (by means of data bases, data warehouses and knowledge repositories, etc.). As a result of the above, new conditions emerge to ensure communications, to help individuals learn in the cyberspace and to run business activities on electronic platforms.

It is necessary to note that in the information society context, economy is not simply continuation of already existing methods to be used while producing goods and rendering services. Universal usage of different information and communications media along with sophisticated electronic information resources that are available to all citizens involves major changes in lifestyles, work habits and business manners (Mansell, & Steinmuller 2000). Intangible entities and network co-operation principles are preferred. A good example is provided by e-business, e-commerce, tele-commuting and virtual organizations. Economic processes are realized on electronic platforms and human beings are more and more frequently excluded.

When analysing the nature of the information society, it is invariably noticed that its typical feature is demand for new professions and specialties in the field of non-material activities, related, first of all, to information processing in broad terms (in the earlier forms of the civilisation's development e.g. during the agrarian phase of development, such professions as a fisherman, a hunter and a farmer dominated, and in the industrial phase – the professions related to the manufacturing process). These include information intermediaries, electronic market makers, webmasters, Internet service providers, information and knowledge brokers. At the same time, we can see a dramatic reduction in employment in the area of material production, both industrial and agricultural. Professional work increasingly tends to be not connected with fixed employment. Owing to ICT, work may be done at home or in any other place and time. Work is becoming personalized and non-formal. At the same time, people often have to retrain, change their jobs or even professions (Olszak, 2004).

In the information society, the model of education is subject to thorough review. The existing paradigm, based on fact graphic, mechanical and lineal acquisition of knowledge, is often abandoned and replaced by the proactive and creative approach, lifelong learning and training. The information society is highly mobile, in time and in space alike. A variety of interactive courses and e-learning etc are growing vastly (Kluge, & Riley, 2008: Olszak, & Ziemba, 2008).

However, the information society development is also connected with some concerns and threats (Castells, 1996, 1997, 1998). Social conflicts and unrest look a bit different from what they used to be. They primarily stem from a lack of access to ICT and the skills required using it and, as a consequence, leading to the so-called digital divide of the society. It is believed that societies which lag behind in terms of the technological development are going to be isolated and excluded from the economic, social and other types of activities (Cellary, 2002). It may even be assumed that the digital exclusion in the nearest future will be equivalent to the social and economic exclusion of individuals, organisations as well as entire regions and societies.

The aim of the paper is to present the actions related to the construction of the information society, which are taken in the Silesian Voivodeship – the most industrialised region of Poland, with the highest population density, quite varied in geographical and demographic terms. The authors present the information society development strategy in the Silesian Voivodeship, which they have actively helped to create. Addressing this issue, the authors hope that the presentation of strategy development and its effects may serve as a valuable guiding tool for other societies and regions, which are taking measures aimed at the construction of the information society.

Countries and Regions in the Context of the Information Society Development

The European Union, being aware of the significance of ICT in the development of the economy and the entire societies, has taken a number of steps to commence the program for construction of the information society.

The first official document, confirming the EU's interest in the information society's issues was a report by Martin Bangemann and others (1994). It presents the recommendations for strengthening of the EU's position in the technological race on the international arena. The action plan of "Europe's Way to the Information Society" was approved and announced by the European Commission, and then discussed by the Information Society Council.

In 2000, the European Council at its meeting in Lisbon adopted the strategy for the construction of the knowledge-based economy by 2010. This initiative was expected to contribute to the economic growth, job generation and better social coherence within EU.

The key documents that set forth the assumptions and guidelines for the construction of the information society include (Olszak, 2004):

- *e*Europa 2002 - An Information Society for All. This initiative aimed to accelerate the actions towards the transformation of the European society into the global information society. The program assumptions of *e*Europa were to stimulate the growth in employment, work efficiency, competitiveness of European products in the world's markets and positively affect the European social and economic life as such.
- *e*Content – a long-term EU program, aimed at stimulating the development and implementing the European digital resources in the global networks as well as promoting the linguistic variety in the information society.
- *e*Europa+2003 et seq. – A Co-operative Effort to Implement the Information Society in Europe.
- an action plan produced by candidate countries, supported by the European Commission, and similar to the action plan of *e*Europa 2002.

In Poland, using *Europa* as a model, the *e*Polska initiative was created – the information society development strategy for Poland in the years of 2001-2006, subsequently expanded to cover the period of 2007-2013. The *e*Polska document is a collection of individual strategies from all the areas concerned with the construction and implementation of the information society. The main focus is on the development of the ICT infrastructure, expansion of the digital content resources, primarily in Polish, IT education, provision of on-line administration services targeting the needs of citizens and businesses, promotion of e-commerce, e-learning and e-health.

An important task for Poland, as described in the action plan for the construction of the information society, is active inclusion of the individual regions of the country into this process. It is believed that, first of all, the regions and towns should start the initiatives for application of modern technologies. The regions, which are often called „small motherlands", are often able to identify the needs and conditions for the development of the information society in a more accurate way than the central administration.

The construction of the information society in the regions intensified in Poland in 2000, after the announcement of the Lisbon Agenda and establishment of the European Regional Development Fund, which has become the main source of funding for regional policies and construction of the EU cohesion. We should note that in 2003 over a quarter of the structural funds and the European Social Fund were related to the IS projects. However, the inception of the uniform strategy of

regional informatisation dates back to 1994, when the European Commission took a decision about the development of the structural funds. At that time also the InterRegional Information Society Initiative IRISI was established, and in 1996 the Regional Information Society Initiative RISI, aimed at funding and coordinating of the mechanisms for the construction of the information society in regions ("Final Report...", 2002; "The Structural Funds…", 1999).

It should be noticed that the program for the construction of the European regional structure of the information society is based on three basic theses:

- the economic transformation of regions, based on knowledge and technological innovativeness,
- e-EuropeRegio, which is the information society for the regional development, and
- protection of the regional identity and the sustainable development ("Information Society…", 2000; "The Regions…", 2001).

This program has laid the foundations for the determination of the national policy aimed at the development of the regional structure of the information society. It focuses, first of all, on:

- increasing the awareness of inhabitants and businesses in the region in terms of ICT applications,
- carrying out the social exclusion prevention policy,
- strengthening the region's competitiveness and attractiveness,
- taking measures in order to improve labour market training and intensify actions related to education and innovativeness,
- including efforts aimed at the development of the information society into investment plans and structural changes in regions, and
- promoting regional initiative of the information society, including pilot projects.

Methodology of Research for the Information Society Development Strategy in the Silesian Voivodeship

Description of the Silesian Voivodeship

The Silesian Voivodeship is a region with the highest level of population and industrialisation in Poland. The voivodeship is inhabited by almost 4 million people, which accounts for 12.3% of the country's population. The average population density in the voivodeship is approx. 379 people per square kilometre. The vast majority of the inhabitants live in the eastern part of the voivodeship, while the southern, mountainous part of the region is much more scarcely populated. The region owes its character to the Upper Silesian Agglomeration, which is a group of towns practically adjacent to one another, and which spreads through approx 70 km. The Agglomeration covers almost 18% of the voivodeship's area (1,200 km^2), and has almost 60% of the region's inhabitant, i.e. about 2.4 million people. The average population density in the agglomeration is approx. 1,900 people/km^2, which is almost five times the regional rate. The Silesian community is quite varied in terms of their nationality, cultural background and income, as well as education. The voivodeship had its heyday during the industrial revolution and the post-war period, when the coal mining, metallurgic and other industries grew dynamically. For a few years, the Silesian Voivodeship has seen a dramatic decrease in the importance of industries, to the advantage of services. Despite years of neglect in the environmental and educational areas, there are numerous software companies, institutes of tertiary education and research centres located in the region, in addition to the high technology industry. The Silesian Voivodeship belongs to the most eco-

nomically powerful regions in Poland. It generates 13.7% of the Gross National Product (GDP), which makes it rank second in Poland. There are over 424,000 business entities registered in the Silesian Voivodeship. The biggest group comprises the self-employed – 330,100 and companies – 23,500 (including 4,100 companies with foreign capital). The smallest group consists of state-owned enterprises – 246 ("The Śląskie Voivodeship…", 2008).

Therefore, the Silesian Voivodeship is considered to be a strategic region for domestic and international investors. Its further development, however, will largely depend on the policy for the information society development. That is the reason why the creation of for the information society development strategy for this region has recently become a priority.

Work Methodology for Establishment of the Information Society Strategy for the Silesian Voivodeship

The representatives from various circles: the world of business, science, administration, regional authorities etc. have been invited to participate in the construction of the information society strategy in the voivodeship. As mentioned before, also the authors, acting as an expert and a consultant, have been participating in this project. The work on the development of the information society is performed by numerous working groups, and the Silesian Centre of Information Society acts as a coordinator. The Strategic and Spatial Planning Department from the Marshall Office, takes active part in this work.

In accordance with the accepted research methodology, the work on the information society development strategy for the Silesian Voivodeship was conducted in form of workshops. The workshops were devoted to the following problems:

- A diagnosis of the state of the institutional infrastructure for the information society of the Silesian Voivodeship,
- A SWOT analysis for the voivodeship in the context of the information society strategy,
- A vision and objectives in the context of the information society development in the voivodeship, and
- Directions for actions and projects within individual strategic objectives.

Below you will find a resume of work carried out within the individual workshops.

Results Achieved when Establishing the Information Society Development Strategy for the Silesian Voivodeship

The SWOT Analysis for the Voivodeship in the Context of the Information Society

In accordance with the accepted methodology, the diagnosis of the state of institutional infrastructure development for the information society of the Silesian Voivodeship has laid the foundations for the SWOT analysis of the region. The outcome of this analysis is presented in Table 1.

Strategic Goals of the Information Society Development

The SWOT analysis has formed the basis for identification of the information society's strategic goals. It has been assumed that these goals have to take advantage of the strengths of the voivodeship and eliminate its weaknesses, as well as use the opportunities and prevent the threats. When identifying the strategic goals for the information society development in the Silesian Voivode-

ship, referring to the solutions used in other countries, including Finland, attention has been drawn to three perspectives (Szewczyk, 2006):

Table 1: SWOT analysis for Silesian Voivodeship in the context of information society strategy

STRENGTHS	WEAKNESSES
High concentration of ICT network users, Big number of small ICT businesses which, due to the scale of their operations, have direct contact with end users of ICT applications Relatively easy access to ICT networks due to a high level of urbanisation Big educational potential (technical and business sciences) The Electronic Communication of Public Administration System in place Silesian e- health cards Big number of R&D centres	Lack of coordination of ICT initiatives and projects at the regional level Small amount, limited range and low quality of online public services Limited access to wireless networks Financial constraints on investment (internal and external) in ICT companies Insufficient competence of administration, preventing it from provision of e-services
OPPORTUNITIES	**THREATS**
Growing interest in the information society at the EU level (relatively substantial percentage of funds allocated for the information society projects) Attractiveness of the ICT sector for investors (including foreign ones), Growth of online services, their universality and accessibility at the national and global level	Unstable and complex system of legal regulations in the ICT area Persistent high costs of using the telecommunications network Resistance against necessary changes in the lifestyle due to ICT development "Not-in-my-term-in-office" attitude of authorities to introduction of reforms, innovations and investment

- the citizen's perspective, which is citizen's readiness to use services offered by the information society,
- the public administration perspective, which is the reformation of the voivodeship management and improvement of its effectiveness through the use of ICT, and
- the entrepreneurs' perspective, which is increasing the competitiveness through the use of ICT technologies.

Such an approach was determined by the fact that good public administration - entrepreneurs-citizens' cooperation is necessary for construction of the information society.

The information society development strategy for the Silesian Voivodeship is presented by means of five strategic goals. These comprise (see Table 2):

- increasing the awareness of and the competence in use of the potential of ICT,
- improving technical and economic accessibility of ICT infrastructures,
- increasing the amount and usefulness of services and digital contents,
- increasing the participation of ICT in the economic development process,
- improving e-development coordination and management.

Table 2: Strategic goals of the information society in the Silesian Voivodeship

GOALS				
Increasing awareness and competence in use of ICT potential	**Improving technical and economic accessibility of ICT infrastructures**	**Increasing the amount and usefulness of services and digital contents**	**Increasing the participation of ICT in the economic development process**	**Improving e-dvelopment cordination and management**
THE DIRECTIONS FOR ACTIONS AND PROJECTS				
To activate circles being at risk of digital exclusion in terms of ICT	To coordinate actions related to expansion of ITC networks in the region	To expand interoperational 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 IS idea among inhabitants	To expand and modernise ITC 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 IS development
To create and develop tools for supporting initiatives, making it possible to increase competences needed for ICT use	To support actions aimed at increasing competitiveness in the ICT sector			

Increasing the awareness of and competence in use of the potential of ICT

The construction of the information society is inseparably connected with education, investing in people and their skills, and preparing citizens to become members of the information society. The key direction for the actions should be education of the society in methods and possibilities of using equipment and ICT, as well as electronic services and resources (databases, data warehouses, information portals etc.). The emphasis should be placed on education in the field of ICT applications in professions and specialties, in order to maintain the level of employment and reduce unemployment.

The experience shows that the inhabitants of the region often do not have appropriate competences in the area of ICT applications. This is confirmed by an audit and numerous studies conducted among organizations and individuals (Papińska-Kacperek, 2005). Here we should refer to the studies showing that in 2007 over 40% of households claimed that the reason for their lack of Internet access was not having such a need. (“Wykorzystanie...”, 2008). Moreover, according to the conducted analyses, the use of Internet technologies in small and medium-sized firms, their knowledge about implementation and applications of Internet technologies in business is not sufficient and measures should be taken to make them more popular (Olszak, & Ziemba, 2008). This hinders, or even prevents, ensuring common public acceptance of the information society and actual ICT applications.

Improving technical and economic accessibility of ICT infrastructures

The information society development in the region is determined by common, fast and cheap access to ICT infrastructures. Therefore, it is necessary to break down all the barriers preventing the application of ICT. These are mainly economic and technical barriers. Economic barriers are connected with costs of ICT access (costs of computers, Internet access, and servers) and may constitute the reason for digital exclusion of a citizen, as well as small and medium-sized organisations. Contrary to a common belief, the social position of numerous citizens and high operating costs of businesses frequently prevent access to ICT infrastructures. Another basic barrier to the information society development in the Silesian Voivodeship is the technical one, which mainly concerns accessibility of the Internet as well as broadband connections. Consequently, without the effective, good quality and well-developed ICT infrastructure the Silesian Voivodeship will not manage to achieve a high growth dynamics of the information society. Therefore, measures have to be taken to establish durable infrastructural and institutional foundations for its development. An important role may be played here by stocktake and modernisation of the existing ITC networks (offered by a number of telecommunications companies) and creation of new solutions, based on uniform standards. It is also necessary to take actions aimed at reduction of Internet access costs and its availability in public places.

Increasing the number and usefulness of digital services and contents

The Silesian Voivodeship should have access to a wide range of high quality electronic services, including e-administration, e-business, e-healthcare, e-education, and e-culture (Olszak, & Ziemba, 2007, 2008). At present, a big number of electronic services, offered to companies, employees and individuals, prove to be insufficient and their quality requires improvement. The most common ones are e-trade services, but there is still a lot to do in this area, too (Kucia, 2008). The situation is much worse in e-administration and e-health services.

The above-mentioned studies carried out among the small and medium-sized businesses in the Silesian Voivodeship showed that the use of the Internet by companies is not common. It is mainly limited to supporting B2B and B2C relations. Companies most frequently implement Internet technologies to support their marketing activities and project their image. Direct sale is less frequent e.g. using companies' own online shops. In companies' relations with financial institutions, they only use electronic transfers. When dealing with public administration offices, in turn, the major part are electronic settlement forms sent to the Social Insurance Institution (ZUS). Firms tend to use various forms, which are placed online by public administration offices (Olszak, & Ziemba, 2008). Electronic banking is also growing dynamically, but other areas of electronic services are only marginal. ("Wykorzystanie...", 2008). Services used by individuals include, first of all: email, chatrooms and discussion forums as well as search for information about goods and services.

A lot of attention, when working on the information society development strategy for Silesia, should be paid to the disabled. The Internet should soon become an important tool for supporting rehabilitation, exchanging information, facilitating the contact with a physician and contributing to effective organisation of numerous forms of support for the disabled.

Provision of a wide range of digital services and contents is an essential development pillar for the information society in the region. In view of this, it is necessary to ensure the support of authorities and create such a technical infrastructure in the voivodeship, which will enable provision of services and contents to the biggest possible number of users.

Increasing ICT participation in the economic development process

In the information society development strategy for the Silesian Voivodeship, the central place is occupied by two ICT sectors, i.e. manufacturing of ICT equipment and related services.

The manufacturing of ICT equipment sector should comprise:

- hardware (servers, PCs, printers, workstations),
- communications equipment (landline and mobile phones);
- network equipment and data transmission equipment (LAN networks, transmission equipment, mobile telephony infrastructure), and
- office equipment (copiers).

Among ICT services, the focus should be on:

- software (system and application),
- telecommunications services (telephone, connection lease and data transmission, cable television), and
- ICT services (consulting, implementation and maintenance).

The voivodeship's aim should be to increase the region's participation in the listed ICT sectors. The ICT sector may be indicated as the strategic sector for the region's economy, if there are a few groups of factors, with the key ones such as (Cygler, 2003):

- The impact of the ICT sector on the economic development in specific regions, countries and the world's economy**.** An example may be Ireland, which achieved a 75% economic growth within 10 years and a decrease in the unemployment rate from 16% in late 1980s to 5% in 1990s, owing to their pro-investment policy in ICT and related sectors.
- The ICT sector has a substantial growth potential and can generate new jobs (e.g. teleworking) and stimulate innovativeness. The ICT sector belongs to the fastest growing areas of economy worldwide.
- An important strength of the ICT sector is to be found in its close links to the related sectors, and that's why investment in this sector brings considerable advantages in the other branches.
- The region has a lot of possibilities to maintain its position of an important producer of products and services based on advanced technologies. This is also due to the fact that is has a good transport infrastructure, relatively easy access to ICT networks, a big educational potential, a big number of R&D centres, a bit number of potential ICT users in the business and household sectors.

Improving coordination and e-development management

The regional authorities play an important part in creating the conditions for the information society development. The condition for a success of numerous initiatives is their genuine commitment to establishment of regional, intersectoral partnerships for the information society development. The activities related to the information society development should constitute a part of the regional policy, and many of them are supported with the structural funds.

The Directions for Actions and Projects Related to Pursuit of the Goals Set by the Information Society Strategy

The strategic goals identified and described above are reflected in numerous initiatives, which have recently been initiated in the region. The key ones are:

- SEKAP (Electronic Communication System for Public Administration) - a system connecting over 54 partners (a project party completed, the subsequent stages are still to be completed),
- Silesian health insurance card, which was created within the framework of the e-health project – a project completed in the Silesian Voivodeship as the only voivodeship in Poland - the subsequent stages are still to be completed and integrated with the remaining voivodeships,
- The information society cluster in the Silesian Voivodeship, with the aim of creating the conditions for cooperation between partners from the areas of education, economy and administration, in order to establish, start and promote innovative projects related to the information society development – a planned project,
- The construction of a multilingual online platform for the Silesian Voivodeship, aimed at international promotion of the region – a planned project,
- Implementation of many e-services by cultural and artistic institutions (Silesian Cultural Heritage, Silesian Tourist Information Portal, Industrial Monuments Route) - a project partly completed and should be continued.

One of the listed and partly implemented projects is SEKAP. The project is partly EU-funded, from the European Regional Development Fund, within Regional Development, Integrated Operational Program. The mission of the project is to increase the living standards in Silesia by giving access to cutting edge technological solutions to citizens, officials and entrepreneurs. When starting the project, the assumption was to increase the competitiveness of the Silesian Voivodeship on the domestic and international arenas and to prepare its inhabitants for common use of the information society technologies. The outcome of the project is establishment of the Electronic Public Services Platform (PeUP) at www.sekap.pl, where 54 public administration offices from the Silesian Voivodeship provide its e-services at the same address. The platform may be used by inhabitants and entrepreneurs alike. SEKAP was meant to target three customer groups:

- entrepreneurs – electronically they can carry out the entire process of business registration, receive the necessary certificates, licences (e.g. when providing transport services),
- inhabitants – electronically they can access public information, look through a catalogue of services rendered by the offices, file their applications , monitor their progress, receive correspondence from the office and benefit from free-of-charge advice and legal information concerning consumer protection, and
- public officials – provide a wide-range of services to customers electronically.

The initial analyses and research findings show that implementation of the SEKAP project has contributed to a considerable improvement in work efficiency of local administration bodies, quality of services provided to inhabitants and entrepreneurs and accelerated the speed of task completion. At the same time, costs of public services have been reduced. The SEKAP project has helped inhabitants of the voivodeship to make a wider use of the information society benefits in their contacts with public authorities, and entrepreneurs to handle formalities related to starting and conducting business activities, and for Silesia it is an opportunity to boost its competitiveness at the domestic and international level.

Conclusion

The strategy sets objectives of the information society to be achieved and directions of actions undertaken to support realisation of the objectives in question. The objectives and directions of actions make up some framework for initiatives and projects undertaken. Many of such projects may be financed by means of the European Union funds. Another stage of works related to the

development of the information society in Silesia will involve elaboration of a detailed plan of implementing projects and initiatives that are connected with the information society strategy and that pay attention to some limitation of resources and time, costs involved and results expected.

Implementation of initiatives related to the information society development provides an important opportunity for development of the Silesian Voivodeship. The region, previously associated with heavy industry and degradation of the natural environment, has a chance to change its image and transform into a centre, which will:

- actively co-participate in the Global information society development,
- enjoy a common multichannel access to ICT,
- ensure useful, friendly and wide-spread e-services for inhabitants, entrepreneurs and tourists, and its inhabitants will be aware of the opportunities granted by the ICT growth and will have the knowledge and skills needed to make use of these opportunities,
- have a considerable participation of the ICT sector in generation of the voivodeship's income and achieve a sustainable development by means of knowledge-based economy and the information society.

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