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Baseline study for Małopolska Region (Poland)

Version 1.2

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1. Territorial characteristics

1.1. General information

Małopolska (Lesser Poland) Voivodship is one of the smallest voivodship in Poland, but with relatively high number of inhabitants (fourth place in Poland). On the other hand Małopolska is the second voivodship in Poland with the highest population density. Average population in one rural locality is equal to 887 inhabitants in Małopolska, while in Poland is equal to 290 inhabitants, which indicates that villages in Małopolska are more inhabited than in other voivodships in Poland. Only two other voivodships in Poland have similar population in rural localities (Podkarpackie and Silesia). More detailed data about Małopolska voivodship is given in Table 1 [1-3].

Małopolska poses seventh position in Poland in potential in the country economic development. Contribution of Małopolska in Poland GDP is equal to 7.8%. Economic growth in Małopolska is relatively high (103.3% per year). The region's economy includes high technology, chemical and metallurgical industries, food processing, spirit and tobacco industries. The region is also well developed in education and tourism services. The most industrialized city of the voivodship is Krakow. About 177 500 enterprises are operating in the voivodship in 2015, mostly small and medium-sized. About 800 000 persons are employed in Małopolska [3]. The number of economically active persons in Małopolska is about 1.4 mln persons. The unemployment rate (6.6%) is lower than in other regions in Poland (8.2%). The largest number of enterprises (~44 000) is operating in the field of trade and repair of cars. About 7 500 enterprises related to information and communication services are operating in Małopolska. About 32 100 persons are working in ICT services. Many active providers of IT services, including large international enterprises is operating in Krakow. It is worth to notice that 23 big ICT companies is operating in Krakow, mostly based on foreign capital (such as IBM, Motorola, Nokia).

Małopolska offers good conditions for investment and development, especially in the High-Tech, automotive, tourism and Business Process Outsourcing, due to good transport accessibility, openness to foreign markets, presence of skilled workers and well-qualified scientific and research community, well-developed network of banking services and rich natural resources. Transport infrastructure is based on International Airport Krakow – Balice, railway lines in different directions and motorway A4 (from Southern West to East of Poland, main transit corridor from Western Europe to Ukraine - CORRIDOR III). Also local roads are

creating very well developed. Małopolska is the second voivodship in Poland in terms of number of students. About 175 000 students are learning in Małopolska, mostly in Krakow, in 31 higher schools. The largest university in Małopolska is the Jagiellonian University, founded in 1364, at which about 42 000 students are improving their knowledge and skills in various sciences. AGH University of Science and Technology, Kraków University of Technology, University of Economics, Pedagogical University and University of Agriculture are also big higher schools. Several private higher schools in smaller cities (Nowy Sącz, Tarnów) were also founded. A dozen of scientific institutions (i.a. institutes of Polish Academy of Sciences) are operating in Małopolska. This implies an availability of skilled workers in Małopolska.

Generally local authorities and public bodies in Małopolska create good opportunities to development of enterprises and they support enterprises in economic growth through several ways. Firstly, seven intelligent (smart) specializations were chosen for Małopolska. Among others information and communications technologies (including multimedia) were selected as one of the intelligent specializations. Development of enterprises, which are operating in such specializations, will be supported by public bodies, especially from European Union funds within 2014-2020 financial perspective. Also special economic zones has been established within the voivodship as a place enabling for development of enterprises. Additionally 59 innovation and entrepreneurship support centers (i.a. technology parks) are operating in Małopolska. Also 21 cluster initiatives were established, especially related to modern medical services, i.a. LifeScience Cluster, MedCluster.

Table 1. Fundamental data about Małopolska voivodship [1-3].

| Indicator | Małopolska voivodship | Poland |
|--|------------------------------|------------------------------|
| size | 15 182 km ² | 312 679 km ² |
| share of rural areas - size | 13 527 km ² | 290 865 km ² |
| number of inhabitants | 3.4 mln | 38.4 mln |
| share of rural areas - number of inhabitants | 1.73 mln | 15.24 mln |
| density of the population (inhabitants /km ²) | 222 | 123 |
| share of rural areas - density of the population (inhabitants /km ²) | 128 | 52 |
| GDP per capita (in 2014) | 38 157 PLN (≈ 8672 EUR) | 44 672 PLN (≈ 10152 EUR) |
| GDP growth (per capita) (in 2014 in comparison to 2013) | 103.3% | 103.3% |
| unemployment | 6.6% | 8.2% |
| number SMEs (active) per 1000 inhabitants (in 2015) | 52.7 | 49.8 |
| size of businesses - average turnover (income) | | |
| all enterprises | 1.8 mln PLN (≈ 0.41 mln EUR) | 2.1 mln PLN (≈ 0.48 mln EUR) |
| SME | 1.1 mln PLN (≈ 0.25 mln EUR) | 1.2 mln PLN (≈ 0.32 mln EUR) |
| large enterprises | 480 mln PLN (≈ 109 mln EUR) | 525 mln PLN (≈ 119 mln EUR) |
| size of businesses - average number of employees | | |
| all enterprises | 4.51 | 4.91 |
| SME | 3.36 | 3.40 |
| large enterprises | 798 | 846 |
| size of businesses - total number of employees in SME | 595 078 | 6 491 998 |

1.2. ICT development, application of digital skill by people and companies, its impact on the overall economy and business development.

Specific data related to ICT sector, human skills and ICT infrastructure in households and enterprises in Poland can be found in Table 2. Generally, data for Małopolska voivodship is not accessible for most of the indicators. Nevertheless some data clearly indicates that data for Małopolska is similar to overall (average) data for Poland. Polish databases include separate information about for small, medium and large enterprises, so connected data for SMEs were obtained from recalculation data* (because some misleading errors can be introduced during assuming number of small and medium enterprises operating in Poland, the data for small and medium enterprises was also given).

Table 2. ICT development, application of digital skill by people and companies.

| Indicators | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | Source of information |
|--|--------------------|------|------|------|------|------|------|------|-----------------------|
| Percentage of the ICT sector from GDP, % (added value of the ICT sector) | | 3.18 | 3.26 | 3.12 | 3.0 | 3.05 | n.a. | n.a. | [4-6] |
| Percentage of the ICT personnel in total employment, % | | 1.71 | 1.76 | 1.84 | 1.91 | 2.00 | n.a. | n.a. | [4-6] |
| Percentage of enterprises selling online (at least 1% of turnover), % | small enterprises | 7 | 7 | 8 | 8 | 9 | 9 | 9 | [6] |
| | medium enterprises | 11 | | 12 | 13 | 13 | 15 | 16 | |
| | SMEs* | 8 | | 9 | 10 | 10 | 11 | 11 | |
| | all enterprises | 8 | 8 | 9 | 9 | 10 | 10 | 11 | |
| Enterprises that issued/sent electronic invoices, % of enterprises | small enterprises | | 19 | | 23 | | | | [4,5] |
| | medium enterprises | | 26 | | 33 | | | | |
| | SMEs* | | 21 | | 26 | | | | |
| | all enterprises | | 20 | | 25 | | | | |
| ICT investment of enterprises, value of investment (mln PLN) | small enterprises | 517 | 527 | 540 | 522 | 576 | 920 | | [4,5] |
| | medium enterprises | 883 | 987 | 1542 | 1006 | 942 | 995 | | |

| | SMEs* | 637 | 671 | 850 | 668 | 683 | 942 | | |
|---|------------------------------|-------|-------|-------|-------|-------|-------|------|-------|
| | all enterprises | 2870 | 4399 | 3753 | 3045 | 3935 | 3 541 | | |
| (Employed) ICT specialists in enterprises, total (thousands) | | 437.8 | 354.5 | 393.2 | 403.4 | 413.1 | 423.7 | | [6] |
| Percentage of ICT specialists (<i>who have the ability to develop, operate and maintain ICT systems and for whom ICTs constitute the main part of their job</i>) in total employment, % | | 2.8 | 2.3 | 2.5 | 2.6 | 2.6 | 2.6 | | [6] |
| Enterprises which provide any type of training to develop ICT related skills of the persons employed, % of enterprises | small enterprises | | 5 | | 5 | 6 | 6 | | [4,5] |
| | medium enterprises | | 17 | | 17 | 21 | 19 | | |
| | SMEs* | | 9 | | 9 | 10 | 10 | | |
| | large enterprises | | 48 | | 52 | 50 | 51 | | |
| | all enterprises | | 8 | | 8 | 10 | 10 | | |
| Enterprises with broadband (fixed or mobile) Internet connection, % of enterprises | small enterprises | 64 | 72 | 79 | 78 | 89 | 91 | 92 | [4,5] |
| | medium enterprises | 84 | 92 | 94 | 95 | 98 | 98 | 98 | |
| | SMEs* | 71 | 78 | 84 | 83 | 92 | 93 | 94 | |
| | large enterprises | 98 | 99 | 99.6 | 99.5 | 99.5 | 99.5 | 99.7 | |
| | all enterprises | 69 | 77 | 82 | 83 | 90 | 92 | 93 | |
| | Małopolska - all enterprises | 68 | 76 | 78 | 82 | 89 | 91 | 93 | |
| Use of computers, Internet and web sites in enterprises, % of enterprises | small enterprises | 60 | 60 | 63 | 61 | 61 | 61 | 62 | [4,5] |
| | medium enterprises | 82 | 83 | 85 | 85 | 85 | 84 | 86 | |
| | SMEs* | 67 | 67 | 70 | 68 | 68 | 68 | 69 | |
| | large enterprises | 91 | 92 | 93 | 92 | 91 | 91 | 92 | |
| | all enterprises | 65 | 65 | 68 | 68 | 65 | 65 | 67 | |
| Employees using computers and computers with Internet connection in their job regularly, % of total employment | all enterprises | 33 | 35 | 36 | 37 | 36 | 38 | 39 | [6] |
| Use of social media in enterprises (use any social media), % of enterprises | small enterprises | | | | 18 | 20 | 20 | 22 | [4,5] |
| | medium enterprises | | | | 24 | 29 | 31 | 34 | |
| | SMEs* | | | | 20 | 23 | 23 | 26 | |
| | large enterprises | | | | 36 | 46 | 49 | 54 | |

| | | | | | | | | | |
|---|------------------------------|----|----|----|----|----|----|----|-------|
| | all enterprises | | | | 19 | 22 | 22 | 25 | [4-6] |
| | Małopolska - all enterprises | | | | 20 | 23 | 22 | 26 | [4,5] |
| Individuals using the Internet for ordering goods and services, % of individuals aged 16 to 74 | | 36 | 38 | 37 | 36 | 38 | 36 | 36 | [6] |
| Individuals using the Internet for ordering or purchasing goods and services for private use , % of individuals aged 16 to 74 | all areas | 29 | 30 | 30 | 32 | 34 | 37 | 42 | [4,5] |
| | rural areas | 16 | 21 | 22 | 24 | 26 | 29 | 34 | |
| | Małopolska – all areas | | | | | 33 | 35 | 43 | |
| Individuals using the Internet for finding information about goods and services, % of individuals aged 16 to 74 | | 39 | 45 | 48 | 45 | 50 | 42 | 57 | [4,5] |
| Individuals using the Internet for selling goods and services, % of individuals aged 16 to 74 | | 8 | 8 | 10 | 8 | 12 | 12 | 16 | [4,5] |
| Individuals' level of computer skills, % of the total number of individuals aged 16 to 74 | low | | 15 | 15 | 15 | 14 | | | [4,5] |
| | medium | | 22 | 23 | 23 | 23 | | | |
| | high | | 15 | 18 | 18 | 21 | | | |
| Percentage of individuals, which have never used the Internet, % | | 35 | 33 | 32 | 32 | 28 | 27 | 22 | [6] |
| Percentage of individuals having above basic digital skills, % | | | 15 | | | | 15 | 19 | [6] |
| Households having access to internet by broadband connection, % of all households | rural areas | 47 | 53 | 60 | 63 | 67 | 65 | 71 | [4,5] |
| | total | 57 | 61 | 67 | 69 | 71 | 71 | 76 | |

2. Characteristics of ICT in Małopolska

During last years Poland and Małopolska are rapidly becoming the attractive destination for investors due to a big internal demand, low labor costs, a highly-skilled and affordable workforce, stable financial sector, proximity with major European financial centers and relatively attractive tax incentives. Poland poses 7th position in the Social Progress Index for access to higher Education (Social Progress Index, 2013), 7th position in the world in terms of investment attractiveness (Ernst and Young, 2012). The value of the IT market is around 8% of GDP. Approximately 70% of all major IT companies in Poland are outsourced centers belonging to foreign firms, including Microsoft, Google and Oracle, which proves that Poland is a top nearshore IT outsourcing destination for Europe. On the other hand, low innovativeness (i.e. low R&D investments), complicated law regulations and difficulties in obtaining funding for high risk investments were negatively assessed in Poland economy [7-10].

The development of ICT and digitalization in Poland and Małopolska are crucially depend on several important factors:

- widespread broadband Internet connectivity, i.e. access of inhabitants (consumers) and enterprises (e-service providers) to broadband infrastructure,
- high e-skills of inhabitants and employees, whose are recognized as users of ICT services,
- availability of e-services (provided by enterprises and public administration), which can be recognized as offer for providing services for users,
- availability of IT-professionals for enterprises,
- economic, legal and social environment for SME supporting innovation.

2.1. Infrastructure

Despite significant development of ICT during last years, Poland and Małopolska are still behind well-developed regions in West Europe. The most important factor to enhance use of ICT in SMEs and to improve a digitalization of Małopolska is development of **broadband infrastructure**. Only about 16% of SMEs in Poland have access to fast Internet connections (above 30 Mbps), which is necessary condition for using modern ICT services (such as cloud computing, video streaming). Additionally, pretty high number of SMEs (about 8%) haven't access to Internet at all. This means that Małopolska and Poland have lacks in the infrastructure. On the other hand, access to Internet through mobile infrastructure in Poland and Małopolska is one of the best in Europe. 4G connections are available from 2010, which means that Poland was one of the four European countries with first use of 4G technology by inhabitants. Therefore, Poland poses a high 5th place in Europe in access of SMEs to Internet through mobile infrastructure and 7th place in access to fast mobile connections. Also prices of connection to Internet through mobile in Poland is moderate in comparison to other regions (9th place in Europe in prices of connections). Percentage of Internet users, for whom mobile solutions are the only channel of access to broadband Internet, is increasing in Poland. It is

worth to notice that access to Internet by mobile is extremely important for rural areas. Nevertheless, no significant differences between residents of towns and villages was observed in the use mobile connections as only one source of Internet. According to information from main Polish mobile operators about 99% of Poland population is located in 4G network. This indicates that such method of connection to the Internet is good and easy solution to improve access to the Internet of SMEs located in rural areas. However, in accordance with different estimations, about 75-95% area of Poland is covered by 4G network. Some absence in connections is mainly concerned of east regions of Poland. Thus, mobile providers have still some work to improve the range of their network. Because each mobile network provider poses own GSM transmitters infrastructure and decides independently for expansion of their network, investment is based mainly on economic reasons.

2.2. E-skills

Statistical data given in Table 2 indicates some lacks in **digital and computer skills** possessing by Polish inhabitants in comparison to the most developed EU countries. Polish schools are not very well equipped in computer in comparison to well-developed EU countries (ratios of students to computers in 2010-11 in Polish schools are equal to 10, 8 and 9 for primary school, lower secondary and upper secondary respectively) [11]. Nevertheless, Polish education system is greatly improving in IT infrastructure and e-tools. For example, on-line electronic diaries for teachers, students and parents were introduced in many schools and universities in last years.

Currently, the Ministry of Digital Affairs is working on a draft of act on the National Education Network, which will allow for link all schools in Poland and provide high-speed internet access, multimedia educational content and network security services. Over 30.5 thousand educational units are located in 19.5 thousand places in Poland. Only 22% of them place in area within Internet infrastructure with at least 100 Mbps capacity. Above 8 thousands of educational locations had submitted proposals for connections from broadband network within Operational Program “Digital Poland” for 2014-2020.

Utilizing ICT in education system, including creating educational tool kits, e-books and e-learning materials, will be improved through co-financing from measure 2.10 “High quality education system” within Operational Programme “Knowledge, Education, Development” for 2014-2020. Additionally, implementation of e-learning and management through ICT tools will be supported by measure 3.4 “Management in higher education institutions” within the Programme. Similar

Support for utilizing ICT in the education system is provided also through Regional Operational Programme for the Małopolska Region for 2014-2020. „Małopolska Education Cloud” is a project co-financed within sub-measures 2.1.3, 10.1.4, 10.2.3 of the Programme and is designed to encourage young people to broaden their knowledge and to pursue higher education. The initiative enables raising the level of education in collaboration of Malopolska’s leading universities with lower secondary schools. Development of education

will be obtained by interactive lectures, videoconferencing solutions and mobile devices. ICT competences were denoted as one of the crucial skills for young students and they will be improved through sub-measure 10.1.3 „Education in schools” within the Programme. 86 projects were selected for implementation in Małopolska’s schools with the lowest results in evaluation of learning outcomes. The value of support from public funds is about 23 million EUR and will be allocated to co-funding of learning equipment, hardware and software.

Young (16-24 years old) Polish individuals greatly improved computer skills from 2005. The upswing of percentage of individuals (16-24 years old), who have used copy or cut and paste to duplicate or move information on screen, from 2005 to 2014 is equal to 18% in Poland, while the percentage is improved only 11% in EU15. This means that education allows for big improvement in digital and computer skills. On the other hand, citizens of Małopolska are very active in using e-administration services (2nd place among the Polish regions, 1st place in the use of e-services provided by ePUAP - electronic Platform of Public Administration Services). However, there are territorial differentiation in the use of e-government in the voivodship. Thus, special activities are required in the eastern, southern and northern parts of the region. About 57% of internet users from Małopolska had tried to settle issue with administration by e-services.

It is also worth to notice that Małopolska is a good source of **qualified employees** in ICT due to well-developed higher education system. Additionally, about 70 600 MSc students of computer science was studying and about 13 700 graduated in computer science in Poland in 2013, which is about 2% of graduates in all fields. About 2100 students graduated in Małopolska, which is the second position (after Masovia, Warsaw) in Poland. Generally Polish labor market is characterized by qualified employees and low labor costs.

2.3. ICT industry

Małopolska is a region with a **high concentration of companies in the ICT industry**. 23 big (mostly international) ICT companies is operating in Krakow, which confirms that Małopolska and Krakow is a good place for developing ICT services. Małopolska ranks second position in Poland among the other voivodship with the highest employment in the ICT sector. About 1 200 ICT enterprises (about 95% of them was micro-enterprises) was identified in 2014 in Małopolska. Most of the ICT enterprises (58.1%) are located in Krakow. Most of them were related to the activities of Internet portals/websites (32.5%), data processing and hosting (22.8%), and hardware manufacturing (21.2%). Generally, polish IT enterprises specialize in software production and outsourcing services (shared service centers) and games production and the most profitable of IT services is telecommunication. The most important clients for ICT enterprises are public administration and institutions (hospitals, city offices, revenue agencies, Social Insurance Institution, Polish National Health Fund etc.) as well as large companies. About 22% of incomes of the largest IT companies come from products and services provided to the public administration [12]. Thus, public contracts from

government sector's spending on digitization, including e-government, and other orders supported by EU funds are a very efficient driver for the development of the ICT sector.

2.4. Utilization of ICT in SMEs

The big issue is **low utilization of ICT services and ICT specialists** in Polish SMEs. The best digitalized sector of the industry in Poland is the financial sector, which is composed by large companies. Other sectors, despite major changes in recent years, are still remained below the EU average. Only 10% of SMEs employ ICT specialists and 6.4% small and 19.2% enterprises provide training to upgrade ICT skills of their personnel (Table 2, data from 2015). Additionally, 62% of small enterprises have not website and homepage, and the percentage is decreasing, which is correlated with higher using a social media in last years (22,5% of small enterprises utilized social media in 2016). Enterprises from Małopolska are not the most active in using the Internet to interact with public administration (about 82.4% in 2013, against to 93.4% in Silesia and the Polish average - 88%). Reduced utilization of ICT services and investment in ICT solutions in Polish SMEs can be explained by:

- shortage of funds,
- weak environment for supporting small businesses,
- lack of promotion,
- habit of customers to traditional services (which is also prolonged due to relatively short distances between villages and cities in Małopolska and developed transport infrastructure),
- fear of online threats and globalization barriers (mainly due to language barriers), which is one of the opportunities to use ICT.

According to opinions of MARR's Stakeholder Group following ICT solutions can be applied to increase the competitiveness of SMEs:

- e-commerce;
- advanced CRM systems and CMS;
- cloud computing for business (access to developed IT infrastructure and advanced software) and for employees (remote work);
- on-line tools for monitoring ICT investments in SMEs, which may help to identify the factors affected their development and barriers;
- ICT tools for processing large amounts of data "big (smart) data processing" used in data management and analysis;
- portals to track the latest advances in digital science (so-called "Digital science"); e-government, e-learning, e-inclusion, e-culture and e-health;
- advanced ICT applications and tools used in areas such as Smart cities, intelligent transport, energy security, climate change, digitalization of cultural heritage, security of information;

- tools with open access for public data, such as: geographic information, statistics, business registers, environmental monitoring, education, health, science, cultural heritage, tourism, patent data, employment etc.

Presently 28 **ICT clusters** is operating in Poland (the top four is: Interizon Pomeranian ICT Cluster, Masovian ICT Cluster, Wielkopolska ICT Cluster, Eastern ICT Cluster). Nevertheless, only one, Digital Entertainment Cluster, is operating in Małopolska, which is related to very specific kind of ICT services. Four more clusters were working in Małopolska few years ago, but now Multiklaster was removed to Rzeszów (Podkarpackie voivodship), and it seems that three more are not operating at all, which can be indicated by non-active webpages (Małopolska ICT Cluster, Trident IT Cluster and Małopolska E-klaster).

3. Main stakeholders of CCI of each region

| Organization | Address |
|--|---|
| national institutions: | |
| Ministry of Development | <p>Ministerstwo Rozwoju plac Trzech Krzyży 3/5, 00-507 Warszawa, Poland phone: +48 22 25 00 130 e-mail: kancelaria@mr.gov.pl</p> <p>Departament Gospodarki Elektronicznej (Department of Electronic Economy) phone: +48 22 693 59 79 fax: +48 22 693 40 98 e-mail: sekretariatDGE@mr.gov.pl</p> <p>Departament Innowacji (Department of Innovative) phone: +48 22 693 56 06 fax: +48 22 693 40 84 e-mail: sekretariatDIN@mr.gov.pl</p> <p>Departament Koordynacji Wdrażania Funduszy Unii Europejskiej (Department of Coordination of EU Funds Implementation) phone: +48 22 273 79 00 fax: +48 22 273 89 10 e-mail: sekretariatDKF@mr.gov.pl</p> |
| Ministry of Digital Affairs | <p>Ministerstwo Cyfryzacji Królewska 27, 00-060 Warszawa phone: +48 22 25 00 110 e-mail: mc@mc.gov.pl</p> |
| Polish Agency for Enterprise Development | <p>Polska Agencja Rozwoju Przedsiębiorczości Pańska 81/83, 00-834 Warszawa, phone: +48 22 432 80 80, 432 71 25, fax: +48 22 432 86 20 Departament Internacjonalizacji Przedsiębiorstw (Department of Internationalization of Enterprises)</p> |

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|---|---|
| | phone: +48 22 432 82 08 e-mail: media@parp.gov.pl |
| regional institutions: | |
| Malopolska Centre of Entrepreneurship | Małopolskie Centrum Przedsiębiorczości Jasnogórska 11, 31-358 Kraków, Poland phone: +48 12 376 91 00 fax: +48 12 376 91 20 e-mail: sekretariat@mcp.malopolska.pl |
| Regional Labour Office in Krakow | Wojewódzki Urząd Pracy w Krakowie Plac Na Stawach 1, 30-107 Kraków, Poland phone: +48 12 42 27 110 fax: +48 12 42 29 785 e-mail: sekretariat@wup-krakow.pl |
| Board of Malopolska Voivodship, Malopolska Council for Information Society | Urząd Marszałkowski Województwa Małopolskiego Małopolska Rada ds. Społeczeństwa Informacyjnego Raclawicka 56, 30-017 Kraków, Poland phone: +48 12 630 35 90 e-mail: cf.sekretariat@umwm.pl |
| Marshal Office of the Malopolska Region, Management of the Operational Programmes Department, Digitization Office | Urząd Marszałkowski Województwa Małopolskiego Departament Zarządzania Programami Operacyjnymi Wielicka 72, 30-552 Kraków, Poland phone: +48 12 29 90 940 fax: +48 12 29 90 941 e-mail: zpo.sekretariat@umwm.pl Biuro Cyfryzacji Raclawicka 56, 30-017 Kraków, Poland phone: +48 12 630 35 90 e-mail: cf.sekretariat@umwm.pl |
| South Poland Cleantech Cluster | NordicHouse Św. Anny 5, 31-008 Kraków, Poland phone: +48 12 421 73 80 fax: +48 12 421 72 91 e-mail: office@spcleantech.com |
| Business & Progress Foundation | Fundacja "Progress and Business" Juliusza Lea 12B, 30-048 Kraków, Poland phone: +48 12 6360100 fax : +48 12 6368787 e-mail : office@pbf.pl |

4. Regional policy: drawbacks and initiatives for digitalisation of SMEs

List of national level policy documents:

- Poland 2030 "Long-term National Development Strategy 2030". Third Wave of Modernity (LTNDS) - document establishing the main trends, challenges, and concept of development of the country in a long-term perspective, accepted by the Council of Ministers on 5 February 2013.
- National Development Strategy 2020 “Active society, competitive economy, efficient state” (NDS 2020) - actualization of the National Development Strategy 2007-20015, accepted by the Council of Ministers on 25 September 2012:
http://www.archiwum.mir.gov.pl/english/Regional_Development/Development_Policy/NDS_2020/Documents/NDS%202020.pdf
- National Broadband Plan 2020 – only in Polish version:
https://mac.gov.pl/files/narodowy_plan_szerokopasmowy_-_08.01.2014_przyjety_przez_rm.pdf
- Efficient State Strategy 2020:
<http://administracja.mswia.gov.pl/download/58/16077/EfficientStateStrategy2020.pdf>
- National Strategy of Regional Development 2010-2020. Regions, cities, rural areas:
http://www.espon-usespon.eu/dane/web_usespon_library_files/672/national_strategy_of_regional_development_2010-2020.pdf
- National Reform Programme: http://ec.europa.eu/europe2020/pdf/nrp/nrp_poland_en.pdf
- Responsible Development Plan:
https://www.mr.gov.pl/media/14873/Responsible_Development_Plan.pdf

Fundamental documents for national Programmes co-financed from EU funds, 2014-2020:

- Operational Programme “Digital Poland” for 2014-2020:
https://www.polskacyfrowa.gov.pl/media/10410/POPC_eng_1632015.pdf
- Operational Programme “Smart Growth” for 2014-2020:
https://www.poir.gov.pl/media/6223/EN_POIR_zatwierdzony_przez_KE_23022015.pdf
- Operational Programme “Knowledge, Education, Development” for 2014-2020:
https://www.power.gov.pl/media/10256/OPKED_zatwierdzony_przez_KE_en_calosc.docx

List of regional level policy documents:

- Małopolska’s Regional Innovation Strategy 2020 – text is available only in Polish:
<https://bip.malopolska.pl/api/files/1444080>
- Regional Operational Programme For The Małopolska Region, 2014-2020:
http://www.rpo.malopolska.pl/download/program-regionalny/o-programie/zapoznaj-sie-z-prawem-i-dokumentami/regional-operational-programme-for-the-malopolska-region-2014-2020/2016/08/RPOWM_EN.pdf

Increasing the use of digital technologies is one of the aim in the **National Development Strategy 2020** “Active society, Competitive economy, Efficient state”. The aim II.5 will be implemented by three main activities:

- ensuring widespread access to the Internet (mainly by development of the broadband infrastructure, strategy will be fitted to spatial differentiation, i.e. NGN - next generation networks should be developed in big cities; thus investment in Internet infrastructure should be supported for rural areas, because it is unprofitable for private investors),
- dissemination of the use of digital technologies (generally by promotion of e-services, especially in inhabitants above 50 years old and from rural areas, important part will be developing of human e-skills by wide program of digital education of citizens, social campaigns to promote the digital economy and to increase the awareness of potential users on the benefits arising from the use of the Internet, and providing electronic solutions in the field of administration, health, education, justice, etc.),
- ensuring the quality of digital content and services, which will be performed by developing e-administration services and opening digital public resources.

ICT technology has been identified as field with the greatest potential for growth in the region till 2020 and is designated as a smart specialization in the Regional Intelligent Specialization in Małopolska. Many activities in **Małopolska’s Regional Innovation Strategy 2020** are connected with ICT. Priority axis 3 of Malopolska's RIS focusses on the development of information society. Three kinds of activities are taken within the axis: development of the infrastructure, increasing the availability of present and new e-services for residents of Małopolska, as well as increase of digital content in the Internet. Under the priority axis several actions will be taken regarding to the construction of the broadband network of new generation, including broadband based of FTTH technology, as well as to improve parameters (eg. the capacity) of the existing infrastructure. The network of public access to the Internet (hotspots) for mobile devices will be also developed within the axis. Additionally it is planned to create new tools and IT systems using new distribution channels, including mobile devices, smart TV. The projects related to the e-administration will be also implemented (i.e. development of public e-services, electronic communication between public institutions, computerization of public institutions, including the construction of a service center for public administration in the region). Digitalization of content created related to the region, creation of digital libraries and virtual museums will be also implemented, including the development and integration of databases containing digitized content. Three main activities will be performed within the axis:

- Measure F. The development of regional broadband network (mainly related to Regional New Generation Broadband Network),
- Measure G. The development of electronic services and interoperable digital platforms
 - G.1. E-public services and electronic communication in public institutions,

- G.2. Open standards and regional IT systems (mainly related to systems with spatial Information and cloud computing with data from public administration),
- G.3. Modern ICT infrastructure for residents,
- G.4. Multi-system access to information and services,
- Measure H. The development of digital content (mainly related to development of digital content and data security).

Polish government (Ministries of: Digital Affairs, Development, Finance, Health, Infrastructure & Construction and Family, Labour & Social Policy) is leading the Program “**Paperless&Cashless Poland**”. The aim of the program is creating the modern digital state and digitizing the economy. It is complimentary to the Plan of Responsible Development of Poland, which assumes that efficient e-Administration is a crucial element of well-functioning state and sustainable long-term growth. The main idea of "Paperless&Cashless Poland" Program is to leverage know-how from private sector in public sector projects aimed at the digital transformation of the state. Program is realized in strong cooperation with over 160 experts from business and academia to ensure feasibility and practicality of designed solutions (more data is available in PDF file: https://mc.gov.pl/files/paperless_cashless_poland-program_overview.pdf).

There are no specific **legal constraints** in Polish law for using or offering ICT and e-services, because national regulations are connected and compatible with EU directives. Activities of enterprises are based on civil code and commercial companies code. The most important law for e-service providers is Act of 18th July 2002 on providing service by electronic means (English version can be found: http://www.giodo.gov.pl/data/filemanager_en/51.pdf; official Polish text: <http://isap.sejm.gov.pl/Download?id=WDU20021441204&type=3>). Service provider should establish regulations for providing services, which should be freely shared for users before contract assignment. Important obligation, especially for e-service providers, is protection of personal data, which is described in Act of 29th August 1997 on the Protection of Personal Data (official Polish text: <http://isap.sejm.gov.pl/Download?id=WDU19971330883&type=3>; English version: http://www.giodo.gov.pl/plik/id_p/193/j/en/). Consumers have several important rights for agreements signed outside the premise of enterprise (i.a. right to withdraw the contract up to 14 days) according to Act of 30th May 2014 on the Consumer Rights (official Polish text: <http://isap.sejm.gov.pl/Download?id=WDU20140000827&type=3>).

Presently, some legal constraints can be linked with big changes in European personal data protection law due to Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (Text with EEA relevance) and Directive (EU) 2016/680 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA. Polish Ministry of Digital Affairs is working on new complex personal data protection law, which will be consent with EU law. According to

legislation plans of Ministry of Digital Affairs works on new Act will be finished at Autumn 2017. Next amendments in Polish law will be connected after finishing works of European Council on EU VAT Directive, which allow member states to apply lower VAT rates to e-publications such as electronic books, newspapers and periodicals. The draft proposal is part of the EU's wider effort to modernize value added tax for the digital economy in the context of the EU's digital single market strategy (<http://www.consilium.europa.eu/en/policies/reduced-vat-epublications/>).

Polish enterprises gained possibility for using electronic invoices in 2013. European Union regulations (Directive 2010/45/EU amending Directive 2006/112/EC on the common system of value added tax) have been transposed into the Polish legal system through the Ordinance of the Minister of Finance of 20 December 2012 on sending invoices in electronic form, the rules of their storage and making them available to a tax authority or a fiscal control authority. Thus, enterprise may issue electronic invoices and send them in any format, provided that the following conditions are ensured: authentic origin of the invoice – i.e. ensuring the identity of the party delivering goods or the service provider or the invoice issuer; content integrity - details in the invoice may not be changed, invoice legibility. Nevertheless, as presented in Table 2, only 25% of enterprises issued/sent electronic invoices. Low utilization of e-invoices in SMEs can be explained by fear of the customs control and habit for traditional paper invoices (but only sometimes it can be connected with lack of IT solutions in enterprises and older employees).

4.1. Challenges for development of ICT in Poland

As stated in point 2 of the Baseline Study, utilizing of ICT by SMEs in Poland is especially bounded by lack of widespread broadband infrastructure in rural areas, limited skills of employees in medium age (above 50 years old) and habit of customers to traditional services. Also shortage of funds, lack of promotion of e-services and fear of online threats can be indicated as one of the most important barriers preventing broader utilizing of ICT by SMEs and inhabitants. Despite many co-funding possibilities for investment in SMEs available in Poland, lack of transparency and simplicity of fund sources is next problem for applying ICT in SMEs.

4.2. Support for improving the infrastructure and access to the network

Some legal obstacles preventing expansion of the broadband network in Poland were solved by Act of 7th May 2010 on supporting the development of telecommunications services and networks (http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=4857). The Act specifies:

- 1) forms and rules concerning the support of telecommunications investments, including investments related to broadband networks;
- 2) rules governing the activity within the framework of telecommunications of local self-government units and entities performing public utility tasks;
- 3) rules concerning the access to telecommunications infrastructure and other technical infrastructure, financed from public funds;

- 4) rights and obligations of investors, owners, perpetual lessees of real property, individuals who have co-operative ownership right to the premises, property managers and tenants, in particular with regard to the access to a given real property in order to ensure conditions for providing telecommunications services;
- 5) rules for locating regional broadband networks and other telecommunications infrastructure.

Generally, network providers gained through the Act easier access to the real estates, which are necessary to build or expand the infrastructure, similarly as for developing infrastructure of other media, such as water or electrical energy. Also inhabitants received rights for easier access to the network and information about the network.

Additionally, inhabitants are encouraged for using the Internet in home through relief in personal income tax. Costs of access to the Internet can be deducted from personal income in annual tax return for two following years.

As described in point 2 of the Baseline Study, broadband network is developing by private mobile network providers, whose pose own network infrastructure and GSM transmitters. Thus development of the infrastructure in rural areas with low population is limited by economy of the providers. Presently, expansion of broadband infrastructure in such areas is enhanced by co-funding within Measure 1.1 “Eliminating territorial differences in terms of access to high-speed broadband Internet” of the **Operational Programme “Digital Poland”**, 2014-2020 (more information can be found from Centre of Projects Digital Poland website: <https://cppc.gov.pl>). About 1 billion of EUR is allocated for telecommunication providers (large enterprises and SMEs) within the measure 1.1 for co-financing expenses on building Next-Generation Access network in so called “white areas”, i.e. selected areas by public administration, where is no NGA infrastructure, and most likely within three years will not be established NGA infrastructure under market conditions. Additionally all schools should be connected for NGA network, which will be built within the projects.

4.3. Support for improving e-skills of citizens or employees

Many activities were performed for improving digital skills of inhabitants or employees in recent years (good practices are described in point 6 of the Baseline Study). Presently, increasing the degree and the improvement of Internet skills, including public e-services, is the objective of **Operational Programme “Digital Poland”**, 2014-2020 within 3rd priority axis “Digital competences of the society”. The measure 3.1 “Training activities for development of digital competences” consists in support for acquisition and development of digital competences allowing to create demand for the Internet and ICT, with a particular emphasis on public e-services that are already available and will be launched in the coming years with the use of the EU financing. 85 million EUR are allocated for NGOs (public benefit organizations whose working without profit) for co-funding of ICT trainings. Within 1st competition necessary condition for proposals was at least 75% of the total number of participants must have a place of residence in a municipality up to 20 000 inhabitants (other

participants of trainings may have a place of residence in a municipality with no more than 100 000 inhabitants). Nevertheless only two projects were selected (value of co-financing is about 5 million EUR) for support. 2nd competition within Measure 3.1 is focused on ICT trainings for older inhabitants (above 65 years old). Additional points for project proposals will be added for trainings in rural municipalities. Measure 3.2 “Innovative solutions for promoting digital activity” is focused on promoting e-activity of persons (also teachers and students) with at least elementary digital competences to increase and develop those competences by means of their use in practice, e.g. through learning of programming or using the software to create multimedia. About 30 million EUR are allocated for NGOs and scientific, educational and cultural institutions. Also education and information campaigns to popularize benefits from using digital technologies will be performed by Ministry of Digital Affairs. The campaigns will be co-financed from EU funds within Operational Programme Digital Poland.

Improving e-skills of citizens and employees can be supported through **Regional Operational Programme for Malopolska Voivodship** for 2014-2020. Actions in Measure 8.2 „Job activation” are focused on supporting unemployed persons (unemployed and economically inactive), whose situation on the labor market is the most difficult (i.e. people above 50 years old, long-term unemployed, people with disabilities, people with low qualifications and women). Support contains individual diagnosis, consulting, employment mediation, vocational trainings (including ICT trainings), motivational support (by psychological means), grants for improving workplace equipment, initiatives to increase capacity for geographic mobility. About 50 million EUR from EU funds is allocated in the measure. Improving the competences and skills of **SMEs employees** will be supported by sub-measure 8.4.1 “Development of human resources competencies for SMEs” within the Programme. 35 million EUR is allocated for SMEs and their employees for developing competencies and skills. Support will be based on subjective funding system, at which beneficiary (SME) decides about theme and place of employees trainings. Despite ICT is not directly indicated in the measure, improving e-skills is one of the most important topic within so-called Base of Development Services, which was built for providing high quality trainings. Regional Labour Office in Krakow (MARR’s stakeholder) is Intermediate Body for aforementioned measures within 8th axis of the Regional Programme.

Regional Labour Office in Krakow is implementing project “**Career Direction**” financed from measure 10.3 „Developing competencies and skills of adults”. Skills and competences of adults for labor market, particularly in key competences, i.e. ICT and foreign languages, will be improved through:

- vocational trainings or courses, school education in school forms
- guidance and planning careers (through meeting with job advisor),
- admission of qualifications.

The project is directed for:

- employees of Malopolska,
- 25 years old and more, with secondary education or lower,

- or everyone older than 50 years.

4.4. Support for businesses wishing to upscale the use of digital tools

Description of good solutions for SMEs to upscale the use of ICT tools, which were available up to 2013, is presented in point 6.1 of the Baseline Study. New solutions and opportunities for SMEs are also available in new EU budget perspective (2014-2020). **Operational Programme Smart Growth** for 2014-2020 is generally focused on introducing and developing innovativeness and new investments in Research & Development in enterprises, especially in SMEs. Despite application of ICT in SMEs is not directly supported in the Programme, resources for implementation of ICT in SMEs (i.a. ERP systems, Big Data or Business Intelligence) are potentially available in 3rd priority axis “Support for innovation in enterprises” of the Programme. The measure 3.1 “Increased funding of the SME innovative activity using venture capital (VC)” allows for co-funding of SMEs for business development, entrepreneurship and incubation (including support to spin offs and spin outs). The measure 3.3 “Support for promotion and internationalization of innovative enterprises” focuses on expanding export of Polish enterprises. Internationalization of enterprises activity and development of start-up are connected with using digital tools in daily practice in enterprises in many cases. Thus investment in digital infrastructure and e-promotion of SMEs will be supported within the Programme. Similarly, resources from measure 1.2 “Internationalization of SMEs” of **Operational Programme Eastern Poland** can be applied for purchase of software needed to automatization of business processes in SMEs from 5 eastern voivodships (up to 20% costs of software).

Support SMEs for upscaling digital tools is possible within **Regional Operational Programme for Małopolska Voivodship** for 2014-2020. The Programme is focused on improvement of R&D in Małopolska enterprises, which means that the measure is mainly addressed to digital solution providers or producers. In accordance with information from stakeholder (Małopolska Centre of Entrepreneurship) ICT as a smart specialization was indicated in:

- 40% of proposals submitted during 1st competition within measure 1.2.1 “Research and development projects of enterprises”,
- 12% of proposals submitted during 1st competition within measure 1.2.2 “Research and development infrastructure of enterprises”,
- 21% of proposals submitted during 1st and 2nd competitions within measure 1.2.3 “Vouchers for innovation”.

Moreover, some activities within the Programme are focused on internationalization (Measure 3.3) and competitiveness (Measure 3.4) of SMEs from Małopolska. They can be applied as source of funds for implementation of ICT in SMEs. About 16% of project proposals submitted during 1st competition within measure 3.3.2 “International activity of SMEs from Małopolska” was connected to ICT solutions. Main reasons of upscaling ICT solutions are automatization of international business processes (by purchasing services via the Internet, electronic payment, generation Intrastat invoices, selling and issuing invoices in foreign currency and in the selected language, managing consignment storages in different places)

and easier management of production, human resources and services. It means that ICT is one of the most popular smart specialization in Małopolska. Nevertheless, most of project proposals were submitted by SMEs from urban areas (with population above 50 000 inhabitants). Only 9% of projects are accomplished from rural areas.

4.5. Main driving forces in the digitalisation of rural SME’s business activities

Several types of institutions in Poland and Małopolska can be indicated as driving forces for improving applicability of ICT in SMEs operating in rural areas. Telecommunication operators and Ministry of Digital Affairs are responsible for building broadband network infrastructure in rural areas, which is necessary condition to uptake IT solutions by SMEs. Improving skills of inhabitants and SME’s employees can be enhanced by activities of Regional Labor Office in Krakow, NGOs and schools. Much more direct support for SMEs can be provided by public administration, especially institutions responsible for implementation of operational and regional programmes co-financed from EU funds (i.a. Ministry of Development, Malopolska Centre of Entrepreneurship, Polish Agency for Enterprise Development, Marshal Office of the Malopolska Region, Board of Malopolska Voivodship). Moreover, clusters of SMEs and local authorities (especially on the local level; mayors in municipalities) should take important function in promotion of IT solutions in SMEs daily routine practice.

5. SWOT analysis (short version)

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| <p>Strengths:</p> <ul style="list-style-type: none"> - good mobile broadband infrastructure - many young citizens with good digital and computer skills - qualified young employees in ICT field (ICT specialists) - high concentration of companies in the ICT industry - good performance in implementing EU funds in projects related to ICT | <p>Opportunities:</p> <ul style="list-style-type: none"> - EU funds for innovative projects and activities related to modern technologies, such as ICT, - development of e-services by public bodies (e-services related to services offered and organized by public administration, such as health, justice) - improving ICT skills among citizens, - investment in tele-care and tele-medicine, - investment in smart city technologies |
| <p>Weaknesses:</p> <ul style="list-style-type: none"> - barriers in access to broadband infrastructure, especially in rural areas - lacks in e-skills in older citizens - shortage of funds in SMEs - lack of transparency in co-funding mechanisms for investments in SMEs (especially complicated rules for | <p>Threats:</p> <ul style="list-style-type: none"> - lack of public funds for implementation and extension of e-administration services - lack of funds for investment in wire (fiber optics) broadband infrastructure - limited interest of main mobile operators for network expansion in rural |

| | |
|---|---|
| <p>proposals and accounting the expenses in projects co-financed from EU funds)</p> <ul style="list-style-type: none"> - weak environment for supporting small business in Poland - weak promotion of ICT in SMEs and older inhabitants | <p>areas</p> <ul style="list-style-type: none"> - lack of interest of older people in the use of computers and ICT in everyday life - cyber crime |
|---|---|

6. Analysis and identification of main regional experiences and lessons learnt / Good practice assessment

6.1. Assessment of own selected good practices

6.1.1. “Diversification into non-agricultural activities and Creation and development of SMEs”

Improvement of life quality in rural areas and diversification of rural economy were key issues of the 3.1.1 measure “Diversification into non-agricultural activities” and 3.1.2 measure “Creation and development of SMEs” within Rural Development Programme (2007-2013) financed from the European Agricultural Fund for Rural Development. These measures aimed directly at the development of entrepreneurship in non-agricultural activities and changing job profiles in rural areas by giving opportunities to farmers for working in non-agricultural jobs. Various kinds of activities were supported within the measures, i.a. services for agricultural or forestry, services for the local society, sale and retail, craft, construction works and services, tourist services and services related to sports, recreation and leisure, transport services, communal services, manufacturing, storage, production of energy products from biomass, accounting, consulting and IT services.

Support by the measure 3.1.1 is focused on activities registered in rural areas (rural commune, urban-rural commune or rural commune without cities with population above 5 000 citizens) and persons insured as an farmer were supported within the measure. The maximum amount of support in the form of reimbursement of the costs could not exceed 100 000 PLN. The support level was maximum 50% of eligible costs of the project and could cover various types of costs, i.a. purchase of IT equipment and software. Evaluation criteria of the proposals were closely related to location of the beneficiary, mean incomes and unemployment level of the commune at which beneficiary are located. Additionally innovative level of the proposal were assessed. About 8508 contracts with the amount of about 180 million Euro were signed within the measure, which gave big opportunity to change activity profiles in rural areas, including introduction of ICT companies.

Persons or micro-enterprises with up to 9 employees and small economic turnover (below 2 million Euro), which are located in rural areas (rural commune, urban-rural commune or rural commune without cities with population above 5 000 citizens) were supported within the measure 3.1.2. The maximum amount of support in the form of reimbursement of the costs could not exceed 300 000 PLN and were depended on amount of employees which were

planned to be hire. The support level was maximum 50% of eligible costs of the project and could cover various types of costs, i.a. purchase of IT equipment and software. Evaluation criteria of the proposals were closely related to location of the beneficiary, mean incomes and unemployment level of the commune at which beneficiary are located. Additionally innovative level of the proposal were assessed. About 4500 contracts with the amount of 180 million Euro were signed within the measure.

Both measures were implemented under former EU financial perspective (2007-2013). Official assessment by authorities of the measures was not published up to now. Number of assigned contracts suggests that the activities were important for rural areas. Nevertheless, it seems that funds allocated to the activities were too small. Also the promotion of the program in local environments should be better. The activities will be continued in the new perspective of UE funding. Increasing the accessibility of ICT technologies in rural areas and improving the use and improve their quality will be supported within measure 6 “Promoting social inclusion, poverty reduction and economic development in rural areas” within Rural Development Programme (2014-2020). Especially two kinds of the support will be related to previous Rural Development Programme: the measure 6.2. “Bonuses to start of non-agricultural activities”, the measure 6.3. “Assistance to start economic activity for the development of small farms”, the measure 6.4. “Support investment in the creation and development of non-agricultural activities”.

6.1.2. Improving e-skills of citizens

Developing e-skills was supported within the measure 9.6.2 “Improving the competencies of adults in ICT and foreign language skills” of the Human Capital Operational Programme for 2007-2013. Selection of the projects and their implementation were independently performed by labor offices at each voivodship in Poland. The projects could have been realized by private companies (enterprises). Trainings and courses were supported only if they were dedicated to adults (from 18 to 64 years old, also older adults if they were unemployed and declared willingness to be employed), especially with low competencies, who have independently taken initiative in increasing skills and competencies in the areas of ICT skills. The measure was especially focused on improvement of ICT skills in rural areas, because additional points (10 points) within strategic evaluation criteria was given during assessment of the project proposal, which was directed only to adults living in rural areas or in cities with population below 5 000 citizens. Trainings in ICT were finished by certificates which confirmed gaining by participants competences specified for different levels of European Computer Driving Licence (ECDL). The level of improvement of skills in ICT by each participant was examined by subjects which were independent from company which performed the training. The companies which implemented the project received full reimbursement of expenses required for the project implementation, including costs of teaching, competence assessment of the trained adults etc. The value of public support for the projects related to improvement of ICT skills which were contracted at Malopolska voivodship was about 7 million EUR. 44 agreements were signed with training companies related to ICT. 9793 adults were trained in ICT field (62% persons were come from rural areas, 75% women).

Generally the activity was assessed positively, but several issues can be pointed: limited quality assessment of trainings (only by authority), non-suitable (in some cases) matching the subject and level of training to the students, limited efficiency of fund utilization. Thus, innovative complexed support system “subjective funding of education” for SME employees (2014-2015), which was based on Wallonia system, was introduced in the pilot project as a part of measure 8.1.1 within Human Capital Operational Programme (2007-2013). The system was clear with simply agreements and payments. Beneficiary (SME) decides about theme and place of employees trainings, which means that the system is much more flexible in themes, time and forms of trainings. 164 SMEs were benefited in the pilot project, from which 77% were microenterprises, which shows a big interest of e-skills improving in the smallest companies. 14 441 vouchers (with value equal to about 0.4 mln EUR) were used. Most of vouchers were used for short trainings related to professional competencies.

The activity is not directly continued within the project "Career Destination" financed from Regional Operational Programme for the Małopolska Region for 2014-2020 (first stage of the project will be performed in 2016 and 2017). The support for ICT (or language skills) trainings is offered only after advanced evaluation of skills and education level performed for each candidate by professional advisor. If necessity of ICT trainings is confirmed, the candidate will get financial support for specific training, which will be fitted to skills and level of the education of the candidate.

6.1.3. Support for creating e-services by SMEs

Development of electronic business sector in Poland was supported by grants offered within measure 8.1. “Support for economic activity as regards electronic economy” of the Operational Programme Innovative Economy (2007-2013). The main objective of the measure was the development of electronic services and digital tools provided by micro and small enterprises registered in Poland and conducting business for no longer than 12 month, which means that the measure supported start-ups. The SME were supported at level of 85% of the value of the project, which could be range from 20 000 PLN (\approx 5 000 Euro) to 1 million PLN (\approx 250 000 Euro). The maximum duration of the project’s support was 24 months. E-service had to be implemented within the project. E-service was defined as service provided at least partially in automatic way through IT by ICT systems in public ICT networks on individual request of the client without simultaneous presence of the parties at the same place. Nevertheless providing typical IT services, such as e-mail services, hosting services etc. were not supported within the measure. The entrepreneurs received co-financing of costs required for project implementation, including the following:

- the purchase of IT, technical and advisory services leading to the production of digital products and products related to the preparation, provision and update of e-services;
- the purchase of new fixed assets (except real property), as well as intangible assets in the form of patents, licences, know-how and unpatented technical knowledge (especially software);
- remuneration of the people directly involved in project implementation;

- the purchase of training services related directly to the start-up and support of the electronic service for employees of the beneficiary;
- the electronic and traditional promotion of the solutions implemented (through i.a. social media, Google AdWords and positioning on the Google searching website);
- costs of the advisory services.

The value of agreements contracted at 2008 – 2014 was about 0.3 milliard Euro. About 1650 SMEs were supported within the measure. Various start-ups which provide e-services were developed, implemented and offered on the market due to projects implemented within the measure, i.a.: e-learning platform for computer (informatics) training, web-based platform for enterprise managing, web-based system for contracting, registration and accounting dedicated to medical care companies, passengers of public transport information system.

The idea of the activity and value of the support can be assessed very positively. Nevertheless, risk of the project failure (as stated above – most of the SMEs were start-ups) was not taken into account during setting framework of the measure. Also revenue expectations (high economic efficiency of the project was required in proposals) in many cases was overestimated. Additionally, too complicated and detailed rules of co-funding of expenses can be highlighted.

The activity is not continued directly after 2013 on the national level. Nevertheless some of the regional operational programmes may provide similar activities for SMEs support. For example, Regional Operational Programme of Lubusz Voivodeship 2020 (Lubuskie Region) supports introduction of new digital technologies in new e-services, including Internet sales (purchase of hardware, software, IT services, licenses) within the measure 1.5.1 “The development of the SME sector - Support Grant”.

6.1.4. Utilizing modern B2B solutions in SMEs

Implementation of B2B systems was supported in the measure 8.2 of the Operational Programme Innovative Economy (2007-2013). The measure was focused on the incorporation of Business-to-business systems in micro, small and medium-size enterprises, which enable joint business ventures conducted electronically between companies. The support was directed to SME registered in Poland, which can reveal co-operation through civil law contracts with at least two other companies. Tightening co-operation between partners through modern information technologies were promoted through the measure. The support could be obtained for projects of an IT and organisational nature, which led to the implementation of business processes between at least three enterprises. The entrepreneurs had to present plan business co-operation based on electronic solutions through the implementation and integration of new or currently used-IT systems and the automation of the business processes (i.a. ordering, accounting, logistics) taking place between them. The co-financing may be granted for a period of no longer than 24 months. SMEs could receive support, i.a., to:

- purchase intangible assets (patents, licenses, especially software necessary) to implement B2B solutions;

- buy new fixed assets strictly related to the project execution, except for real estates;
- advisory (initial analyzes, expert services, legal and consulting services) involved in the project;
- buy specialized training for individuals involved in the supported project execution and necessary to implement a B2B solution.

The level of support from the measure was depend on kind of expenses, size of the enterprise and location of the project. Micro and small enterprises were supported at level of 70% of the eligible expenses for investments, though medium-size companies were supported at level of 60%. Higher support was assigned only to companies operating at several, less-developed and less-urbanised regions of Poland (mainly southern and eastern regions of Poland). The level of support for training costs was up to 45% for micro and small enterprises and up to 35% for medium enterprises. The level of support for salaries and promotion was up to 85%. Additionally, support for advisory was up to 50%.

The value of agreements contracted at 2008 – 2015 was above 0.3 milliard Euro. About 2200 SMEs were supported within the measure. The activity is not directly continued after 2013 on the national level. Nevertheless some of the Regional Operational Programmes may support similar activities of SME. For example, Regional Operational Programme of Lubusz Voivodeship 2020 (Lubuskie Region) supports introduction of new digital technologies in new e-services, including Internet sales (purchase of hardware, software, IT services, licenses) within the measure 1.5.1 “The development of the SME sector - Support Grant”.

6.2 Selected good practices from other SKILLS+ partner regions

According to description of good practices provided by SKILLS+ partners the following good practices seem to be suitable for improvement utilizing ICT in SMEs operating in Poland or Małopolska. Nevertheless, the final decision will be made after peer review.

Good practices related to **facilitating organisational changes:**

- **Modern Businesses Program**, Hungary – the program implemented by Hungarian Chamber of Commerce and Industry seems to be very effective in implementing digital solutions and their application in SMEs from rural areas;
- **Innochambers**, Spain – the activity of the Chamber is a good way for subjective searching of good solutions, which can be implemented in SMEs;
- **DIGIBOOSTI**, Finland – a policy tool for promoting digitalisation of SMEs and midcaps (less than 300 000 000€/annual turnover). DIGIBOOST co-funds by 50% ICT experts to work within businesses in order to: improve internationalisation and networking; development and innovation; investments and working capital; accessing financial solutions; activities of consulting experts should be important for facilitating changes in SMEs;
- **GOLLI** (Global Orders, Logistics Labels & Information), Finland - developed standards and cloud service for supply chain management (receive orders, gather the goods to be delivered, order the delivery, print out the pallet identifiers and consignment notes, and send the delivery information to the customer) is good example of modern ICT solutions, which allows effective activities in SMEs, especially in e-commerce;

Good practices related to **promotion of ICT solutions:**

- **Ventspils Digital Centre, Latvia** – activity of the centre is a good example of importance the promotion ICT solutions in SMEs;
- **IT Cluster of Central Germany** (Cluster IT-Mitteldeutschland), **Latvian IT Cluster** (Latvijas IT klasteris LITK) – Małopolska's IT clusters are not very active in ICT field, so organization and activity of IT clusters from Germany and Latvia can be considered as a good example.

7. Conclusions

The use of digital solutions by inhabitants and SMEs has significantly increased over the last years, because broadband network was extended, especially by mobile infrastructure, and citizens' experience and skills were increased. The application of ICT is growing in all types of activity, especially in gaining information from the Internet, communication and social media. Nevertheless the growth is lower in SMEs from rural areas than in SMEs located in urban areas or large enterprises.

Beyond investment in the infrastructure, which is necessary condition for development of enterprises, activities focused on improving e-skills and promotion of ICT solutions should be intensified in Małopolska.

Training in digital competences of citizens and employees from rural areas, especially for older persons (above 50 years old) is crucial for improving overall level e-skills of inhabitants in Małopolska. Although the support is provided from several sources (formerly within the Operational Programme Human Capital, and currently within the Operational Programme Digital Poland and the Regional Operational Programme for Małopolska Voivodship), reaching potential recipients and their involvement in training are important barriers preventing improvement of their e-skills. Thus, it is important to promote the possibilities in SMEs and citizens, and to integrate society at the level of villages or communes.

Most of the funding possibilities from EU funds are presently focused on improving innovation through investments in research & development. Nevertheless, SMEs can gain support from public funds also for utilizing ICT solutions in their daily routine businesses, because they are innovative and improve efficiency. Usually representatives of enterprises complain on too complicated procedures for proposals and documents for refund the expenditures. Therefore rules of the operational programmes (co-funding from EU) should be clarified and simplified, especially for greater transparency and rationality of division of funds. Authorities, especially managing or intermediary institutions, should change approach and they should help enterprises in gaining funds from national or EU programmes and solving problems during implementation of projects.

According to opinion of MARR's stakeholders (Business & Progress Foundation and South Poland Cleantech Cluster) non-monetary support will be important for improving utilization of ICT tools. The NGOs seems to be good bodies for providing free trainings and on-line ICT courses, free-access knowledge base with reports and analysis of the latest development trends in ICT field. Moreover, trainings and conferences for SMEs organized by public authorities will be a good way to improve the popularity of digital tools.

Important issue is promotion of ICT solutions and their advantages (easier advertisement and presentation of products for customers, easier promotion of company in the domestic market and abroad) in SMEs and inhabitants. Moreover, SMEs should have opportunity to participate in ICT networks or clusters, which allow for exchange experience in utilizing innovative solutions. Because activity of IT clusters or NGOs in Małopolska is very low, it seems that support for them will be a good idea for implementation.

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9. List of stakeholders interviewed

Interview was performed through e-mail. MARR received response from four stakeholders: Malopolska Centre of Entrepreneurship, Marshal Office of the Malopolska Region (Digitization Office), South Poland Cleantech Cluster and Business & Progress Foundation. Stakeholders were asked about:

- 1) How do you evaluate the current use of digital technologies by SME in rural areas?
- 2) What are the main reasons for not using digital technologies by SME in rural areas?
- 3) Which digital technologies should be used more to boost the competitiveness of SME and why?
- 4) How do you evaluate the support structures and programmes in place to support SME wishing to “go digital”?
- 5) What kind of non-monetary support is necessary to achieve a higher share of SME using digital technologies in their business activities?

Answers from stakeholders were used in points 2, 4-7 of the Baseline Study.