METHODOLOGY SET OF GUIDELINES ON ICT OBSERVATORY

December 2013

Observatory Network
to Enhance ICT Structural
Funds Absorption

European Union
European Regional Development Fund

ACRONYM GLOSSARY

1.0

Acronym	Description
API	Application Programming Interface
ARD	Agence Régionale de Développement Paris île-de-France
ASP	Active Server Pages
CFI	Centre Francilien de l'Innovation
CMS	Content Management System
CRS	Regional Service Card
DataGM	Data Greater Manchester
DEHEMS	Digital Environmental Home Energy Managemen
DMS	Document Management System
ENOLL	European Network of Living Labs
EPIC	European Platform for Intelligent Cities
FabLab	Fabrication Laboratory
FVG	Friuli Venezia Giulia
GUI	Graphical User Interface
HW	HardWare
IIP	Information Identity Card
IPR	Intellectual Property Rights
ISO	International Organization for Standardization
LDAP	Lightweight Directory Access Protocol
LL	Living Lab
MadLab	Manchester Digital Laboratory
MMU	Manchester Metropolitan University
OSS	Open Source System
PASI	Innovative Service Access Point
PSP	Policy Support Programme
R&D	Research and Development
RFID	Radio-Frequency Identification
RUPAR	Rete Unitaria della Pubblica Amministrazione Regionale
SDK	Software Development Kit
SIAL	Local Administration Information System
SIAR	Regional Administration Information System
SISSR	Social and Health Regional Administration System
SOA	Service-Oriented Architecture
SW	SoftWare
SWR	SüdWestrundFunk
WI-PIE	Programma per lo sviluppo e la diffusione capillare della larga banda

INTRODUCTION

2.0

2. INTRODUCTION

The ONE project aims at improving regional capacity for planning investments in ICT through setting up of a network of regional "observatories". Thanks to the creation of these ICT observatories, partner regions seek to enhance the conditions within their innovation frameworks by documenting ICT penetration processes, making data available to relevant public and private stakeholders, and helping with evaluation of ICT initiatives. Thanks to the activity of ICT observatories, ONE takes action to enable decision-makers to make informed choices about ICT investments based on ex-ante and ex-post analyses of their territories.

2.1 WHAT WILL ONE BRING TO REGIONS THROUGHOUT EUROPE?

- An opportunity to participate in a community of interested regions to be federated in the future.
- Methodology set of guidelines on how to develop and exploit ICT observatories to reach an optimal investment planning of resources dedicated to ICT.
- 9 implementation plans providing a roadmap for the integration of the expertise acquired during the project lifetime.

This document analyses more in detail the second point, and aims at providing a Methodology set of guidelines on ICT Observatory development and implementation, that is how to initially develop and further enhance the exploitation of ICT observatories. This will be a good support tool for project partners but potentially for any other regions interested in better tailoring their ICT policies.

2.2 WHAT IS A REGIONAL ICT OBSERVATORY?

An ICT Observatory represents a policy intelligence tool for the management of innovation processes driven by ICT diffusion and usage inside a regional socioeconomic system.

2.3 WHAT DOES A REGIONAL ICT OBSERVATORY DO?

- Supports policy making and evaluation activities on ICT matters.
- Documents the diffusion of ICT among the main socioeconomic actors (households, enterprises and public administrations) providing international benchmarks.
- Monitors the evolution of both wired and wireless broadband infrastructures.
- Studies the impact of ICT usage and promotes discussion opportunities on ICT related topics.
- Identifies and disseminates good practices.

2.4 WHY SET UP A REGIONAL ICT OBSERVATORY?

The creation of an ICT Observatory may serve a number of purposes, including:

- ***evidence based management of Information Society:*** the availability of an impartial, up-to-date and articulated knowledge base allows public authorities to measure, and thus to manage, the diffusion and development of ICT usage among the main socioeconomic actors;
- ***improvement of public spending effectiveness:*** allocating of about 1% of available resources towards understanding if, how, where and when to invest, may significantly reduce the probability of misspending thus improving the overall efficiency of the public body's action;
- ***cost reduction and a better knowledge exploitation:*** the presence of an ICT Observatory allows the research to be concentrated and coordinated. This produces a twofold benefit. On the one hand, it avoids financing of redundant and overlapping studies and as a result eliminates cost duplications. On the other hand, it leads to the production of a more valuable knowledge base thanks to a higher level of consistency in the scheduling and methodologies used for the data collection activities;
- ***assessment of regional policies impact:*** the presence of a periodic monitoring activity allows understanding the impact of the implemented ICT policies. Such activity may be instrumental for implementing corrective actions if and where necessary and for securing additional resources for the design of follow-up actions.

ONE PROJECT PARTNER'S ICT OBSERVATORY STATE OF PLAY 3.0

3.ONE PROJECT PARTNER'S ICT OBSERVATORY STATE OF PLAY

3.1 THE USE OF DIRECT SOURCES

During the first Thematic Workshop of ONE, held in May 2012 in Turin, partners were asked by CSI-Piemonte to indicate the state of play of ICT Observatory activities in their regions, presenting both what is already developed and what they would like to have, with particular regard to the indicators supporting observatory activity.

The results highlighted that a considerable number of partners has some monitoring indicators on the status of ICT penetration, at different levels and with a different detail. However, none of the partners, with the exception of Vysocina Region and piedmont Region/CSI-Piemonte, has monitoring tools on the process to produce indicators or on the nature of the data used.

Partner	Broadband	ICT and citizens	ICT and enterprises	ICT and PA	ICT and schools	ICT and Health
ŁÓDŹ	⬢	⬢	⬢	⬢	⬢	
OCECPR	⬢	⬢				
EPMA	⬢			⬢	⬢	
INSIEL				⬢		⬢
MCC		⬢	⬢			
CSI	⬢	⬢	⬢	⬢	⬢	

Table 3.1 – ONE Partner's monitoring activity

All partners are interested in developing observatory and monitoring activities, in compliance with the specific nature of their mandate and territory, starting from the knowledge of the broadband coverage of their territory, as this generally is a prerequisite for the development of ICT services and for the growth of demand by citizens and enterprises.

Here is a detail of each partner and the information it monitors.

3.1.1 PIEDMONT REGION/CSI-PIEMONTE

The Piedmont Region and CSI-Piemonte, through the activities of the ICT Observatory (both through internal and external sources) and quality surveys, monitor areas such as ICT diffusion and adoption by:

- citizens;
- enterprises;
- local Public Administration;
- schools.

Besides these elements, the ICT Observatory also monitors, as a precondition for the development of services for these actors, the availability and distribution of the network on the regional territory (WI-PIE project).

3.1.2 LA FONDERIE

Potential Indicators Areas of Interest:

- Open Data;
- online digital services;
- use of urban facilities;
- digital capacity of enterprises.

3.1.3 MARSHAL'S OFFICE OF THE ŁÓDŹ REGION

Monitoring:

- digital divide indicator among households, entrepreneurs, public administration entities and higher education in the Region;
- ICT exploitation in the Region;
- e-accessibility in Public Administration;
- e-services usage;
- e-development potential;
- Internet usage broadband.

Project *"Innovation Capital 2009. Updating of Regional Innovation Strategy in the Łód**ź** Region"*, co-financed by the European Social Fund, Human Capital OP: report called *"Innovative Potential of the Łód**ź** Region in terms of ICT – identification of digital gaps"* elaborated by the *"Cities on Internet"* Association.

3.1.4 OFFICE OF ELECTRONIC COMMUNICATIONS & POSTAL REGULATION (OCECPR) OF CYPRUS

The OCECPR monitors the penetration of broadband access through:

- the number of broadband subscribers (by fixed/mobile technology, by speed bracket as defined by EC, by bundle or services, by provider, by geographical/population coverage percentage);

- demographics (total number of households, concentration of population (urban, rural), number of people /household);
- income available for telecom services (both as absolute and as a percentage of the income).

3.1.5 EUROPEAN PROJECT MANAGEMENT ASSOCIATION - VYSOCINA REGION

Monitoring:

- ICT infrastructure;
- electronic public services;
- electronic security;
- ICT education.

3.1.6 INSIEL

Monitoring (with different kind of parameters) four macro areas:

- regional administration information system (SIAR);
- local administration information system (SIAL);
- social and Health regional administration system (SISSR);
- public regional network (RUPAR).

Other relevant indicators: number of the technical support activities (SW, HW, helpdesk, etc.) and the related Service Level Agreement (SLA).

3.1.7 MANCHESTER CITY COUNCIL

Monitoring:

- digital inclusion: n° of residents with Internet access and level of access;
- digital industries: n° of digital businesses and employment/skill levels.

3.1.8 MEDIEN-UND FILMGESELLSCHAFT (MFG)

Potential indicators areas of interest:

- mobile connections;
- network connection speeds in urban/rural/industrial areas.

3.1.9 ŚWIĘTOKRZYSKIE REGION

Monitoring:

- broadband network coverage in the Region;
- number of households with the access to the internet in the house;
- number of households with broadband network access (> 30Mbps);
- e-accessibility in Public Administration;
- digital divide indicator among households, entrepreneurs, public administration entities and higher education in the Region.

The indicators above are derived from the currently implemented projects from Structural Funds 2007-2013:

- exetension of ICT in municipality – Regional Operational Programme 2007-2013 for Świętokrzyskie Voivodship;
- creation of system of spatial information – Regional Operational Programme 2007-2013 for Świętokrzyskie Voivodship;
- broadband Network of Eastern Poland – Swietokrzyskie Voivodship – Development of Eastern Poland Operational Programme 2007 – 2013.

3.2 THE USE OF DIRECT SOURCES

The analysis of the monitoring activities carried out by the project partners shows a rich and multi-faceted situation. Many partners have data on the diffusion and use of ICT in their respective territories, even though at times only for specific sectors. This is mainly due to the specific activities they carry out and to their mission more in general.
This does not lead to the conclusion that the lack of monitoring of their own implies a less effective development of observatory activities. Indeed, local surveys result in undeniable advantages, such as decrease of the time span between data collection and data availability, the possibility to research specific topics that are to be included in local government or development objectives, and the possibility to carry out surveys that are more targeted to the specificities of the regional/local territory. However, it must also be pointed out that European and national statistical offices as well offer a wide range of datasets on the Information Society, with the some regional details.
Considering the increasing needs to develop scale economies, a possible way to develop an ICT observatory activity may also imply the development of analyses based on external reliable and comparable sources, or the integration of internal and external sources, after their comparability has been verified.

3.3 GOOD PRACTICE CATALOGUE

The good practices that have been identified by some of ONE's project partners, and that are described in detail in the Good Practice Catalogue, are intended as a support and as a suggestion for the development of some specific functionalities that characterise an ICT observatory, with special reference to the peculiarity of the different territories, the mission of the different partners, the blueprint and the needs of the political strategy and the stakeholders that direct in different directions, the observatory activities.

As is described in more detail in the following chapter, the local regulation context establishes what activities can be carried out, what information can be collected (i.e. Cyprus), which competences the different organisations are entitled to. This necessarily results in an acceleration, or lack thereof, on some aspects, focussing on some and perhaps neglecting other, as laid out by the political or decisional level. ONE partnership wishes therefore to pool

the experiences of the different partners and, most of all, the lessons learned from their development and implementation, so as to possibly 'suggest' activities and projects to be carried out and so that those who do intend to progress on this route are able to avoid possible mistakes or are able to choose an easier path to reach a specific objective.

Hereafter is a summary of the good practices identified by ONE project partners to facilitate the development phases of a possible observatory, or at least some aspect of these phases, along the whole lifecycle, from the collection of information and their storage, to the development of services or the creation of innovation, up to the setting up of local regulations and organization guidelines for the implementation of a digital agency that can carry out observatory activities.

The information collection and selection phase

CSI-PIEMONTE – Indicators and statistics management - Information Identity Card: a conceptual schema of metadata to improve information interchange and integration

The information storage phase

MFG FOR CITY OF SCHWÄBISH HALL – Data until eternity: to preserve PA's documents for centuries

Innovation development: the Observatory does not only monitor

MANCHESTER CITY COUNCIL – Living Lab methodology and the use of Web 2.0 applications: exploring how a city can use Living Lab methodologies to drive forward digital development

Knowledge of the territory leads to the development of ICT services

INSIEL – ICT Regional organizational model: to manage the Information Technology inside the Public Administration and to provide services to citizens

Proposing a model: the regional agency

LA FONDERIE – Île-de-France Regional organizational model for digital public policies: to define, implement and assess digital public policies on the whole territory

INNOVATION POLICIES: IN THE EU AND IN ONE PARTNER TERRITORIES 4.0

4. INNOVATION POLICIES: IN THE EU AND IN ONE PARTNER TERRITORIES

First of all, it is important to define the framework in which the Observatory or monitoring activity is carried out at two levels: European and National/Local.

4.1 EUROPEAN FRAMEWORK

4.1.1 DIGITAL AGENDA FOR EUROPE (DAE)

The Digital Agenda for Europe (DAE) aims to help Europe's citizens and businesses to get the most out of digital technologies. It is the first of seven flagships initiatives under Europe 2020, the EU's strategy to deliver smart sustainable and inclusive growth. The DAE identifies 7 key areas for further efforts to stimulate the conditions to create growth and jobs in Europe:

- create a new and stable broadband regulatory environment;
- new public digital service infrastructures through Connecting Europe Facility loans;
- launch Grand Coalition on Digital Skills and Jobs;
- propose EU cyber-security strategy and Directive;
- update EU's Copyright Framework;
- accelerate cloud computing through public sector buying power;
- launch new electronics industrial strategy – an "Airbus of Chips".

Full implementation of this updated Digital Agenda would increase European GDP by 5%, or 1500€ per person, over the next eight years, by increasing investment in ICT, improving eSkills levels in the labour force, enabling public sector innovation, and reforming the framework conditions for the internet economy. In terms of jobs, up to one million digital jobs risk going unfilled by 2015 without pan-European action while 1.2 million jobs could be created through infrastructure construction. This would rise to 3.8 million new jobs throughout the economy in the long term.

The Digital Agenda contains 13 specific goals which encapsulate the digital transformation which the European Commission wants to achieve:

- the entire EU to be covered by broadband by 2013;
- the entire EU to be covered by broadband above 30 Mbps by 2020;
- 50% of the EU to subscribe to broadband above100 Mbps by 2020;
- 50% of the population to buy online by 2015;
- 20% of the population to buy online cross-border by 2015;
- 33% of SMEs to make online sales by 2015;

- the difference between roaming and national tariffs to approach zero by 2015;
- to increase regular internet usage from 60% to 75% by 2015, and from 41% to 60% among disadvantaged people;
- to halve the proportion of the population that has never used the internet from 30% to 15% by 2015;
- 50% of citizens to use eGovernment by 2015, with more than half returning completed forms;
- all key cross-border public services, to be agreed by Member States in 2011, to be available online by 2015;
- to double public investment in ICT R&D to € 11bn by 2020;
- to reduce energy use of lighting by 20% by 2020.

Progress against these targets is measured in the annual Digital Agenda Scoreboard where it is possible to see how each Member State is achieving, download complete datasets to compare or develop specific analysis.
The objectives defined by the DAE have some deadlines set for 2013, 2015 and 2026.
The outcomes are not measured against the “implementations”, connected to single project initiatives, but rather against actual results to be reached, that can be measured in terms of improvement on the performance of specific indicators. Therefore, evaluations will be made on how the interventions are able to produce the desired concrete impact on citizens, enterprises and PA daily activities. The progress of the DAE indicators is monitored on a yearly basis in the Digital Agenda Scoreboard, that has now reached its second edition. Another periodic appointment is the Digital Agenda Assembly, an occasion to discuss the strategy and its results.
The compliance with the objectives of the Europe 2020 strategy is clearly expressed for all sectors of intervention of the European regional policy in the concept of “conditionality”, that is in the compliance criteria identified as ex ante conditions for the use of European structural funds. These criteria are described in the proposal of new regulations that are presently under negotiation: the conditionalities identified for each sector need to be complied with by the second year of the new programming period, so that Regions may carry out the scheduled interventions in a framework that guarantees the effectiveness of the interventions. In the meanwhile, a plan of results based on a set of indicators and targets shall be defined at the beginning of the programming period and shall be evaluated during the course of the period.
In particular, for interventions on the Information Society to be co-funded, there should be either at national or regional level, a strategic framework for digital growth to stimulate the demand for accessible public and private services, of good quality and interoperable and to increase their diffusion among citizens.

It is hence important for this framework to integrate programme lines and priorities based on a SWOT analysis which is coherent with the structure of the scoreboard of the Digital Agenda for Europe, an analysis of the balanced support to offer and demand provided by ICTs and on objective indicators measured different sectors of interventions (digital literacy, skills, e-inclusion, e-accessibility, e-health). Planning is also essential for the setting up of ultra-wideband infrastructures.
Regions are hence called upon adopting this approach in the definition of new strategies, that paves the way not only for more capacity to verify the effectiveness of the strategy as it is being implemented (making it possible to adjust the actions to take into account variables that had not been accounted for previously), but also for a more extensive involvement of citizens and stakeholders in a transparent process that encourages participations. Open indicators and data, as qualifying attributes of the new Agendas, may contribute to making the strategies something more than a mere formal or static compliance, rather a transparent, verifiable and agile tool that can be adapted to emerging new needs.

4.1.2 EUROPEAN FUNDS[1]

EU regional policy is financed by three main funds:

- European Regional Development Fund (ERDF);
- European Social Fund (ESF);
- Cohesion Fund.

The ERDF aims to strengthen economic and social cohesion in the European Union by correcting imbalances between its regions. In short, the ERDF finances:

- direct aid to investments in companies (in particular SMEs) to create sustainable jobs;
- infrastructures linked notably to research and innovation, telecommunications, environment, energy and transport;
- financial instruments (capital risk funds, local development funds, etc.) to support regional and local development and to foster cooperation between towns and regions;
- technical assistance measures.

The ESF sets out to improve employment and job opportunities in the European Union.
The ESF supports actions in Member States in the following areas:

- adapting workers and enterprises: lifelong learning schemes, designing and spreading innovative working organisations;
- access to employment for job seekers, the unemployed, women and migrants;
- social integration of disadvantaged people and combating discrimination in the job market;
- strengthening human capital by reforming education systems and setting up a network of teaching establishments.

1 http://ec.europa.eu/regional_policy/thefunds/index_en.cfm

The Cohesion Fund is aimed at Member States whose Gross National Income (GNI) per inhabitant is less than 90% of the Community average. It serves to reduce their economic and social shortfall, as well as to stabilise their economy. It supports actions in the framework of the Convergence objective. It is now subject to the same rules of programming, management and monitoring as the ESF and the ERDF.

For the 2007-2013 period the Cohesion Fund concerns Bulgaria, Cyprus, the Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia and Slovenia. Spain is eligible to a phase-out fund only as its GNI per inhabitant is less than the average of the EU-15.

The Cohesion Fund finances activities under the following categories:

- trans-European transport networks, notably priority projects of European interest as identified by the Union;
- environment; here, Cohesion Fund can also support projects related to energy or transport, as long as they clearly present a benefit to the environment: energy efficiency, use of renewable energy, developing rail transport, supporting intermodality, strengthening public transport, etc.

For 2007-13, cohesion policy focuses on three main objectives:

- convergence – solidarity among regions: the aim is to reduce regional disparities in Europe by helping those regions whose per capita gross domestic product (GDP) is less than 75% of the EU to catch up with the ones which are better off;
- regional competitiveness and employment: the aim is to create jobs by promoting competitiveness and making the regions concerned more attractive to businesses and investors. This objective covers all regions in Europe not covered by the convergence objective. In other words, it is intended:
    - to help the richer regions perform even better with a view to creating an knock-on effect for the whole of the EU;
    - to encourage more balanced development in these regions by eliminating any remaining pockets of poverty.

- European territorial cooperation: the aim is to encourage cooperation across borders - be it between countries or regions – that would not happen without help from the cohesion policy. In financial terms, the sums concerned are negligible in comparison with the other two objectives, but many countries and regions would like to see that change in future.

Objectives	Structural Funds		
Convergence	ERDF	ESF	Cohesion Fund
Regional Competitiveness and Employment	ERDF	ESF	-
European Territorial Cooperation	ERDF	-	-

Table 4.1: Funds displayed in terms of objectives[2]

Funding for regional and cohesion policy in 2007-13 amounts to €347bn - 35.7% of the total EU budget for that period – or just over €49 billion a year. All cohesion policy programmes are co-financed by the member countries, bringing total available funding to almost €700bn.

Amount per fund:

- European Fund for Regional Development (ERDF) - €201bn
- European Social Fund (ESF) - €76bn
- Cohesion Fund (CF) - €70bn

Amount per fund:

- Convergence Objective €283bn
- Competitiveness and Employment Objective €55bn
- European territorial cooperation €9bn

The chart below shows the amounts that each Member State has been allocated in the Operational Programmes that were agreed at the beginning of the current funding period (2007-2013). It also includes the amount set aside for European Territorial cooperation.

These are the combined figures for the European Regional Development Fund, the Cohesion Fund and the European Social Fund.

2 http://ec.europa.eu/regional_policy/how/index_en.cfm

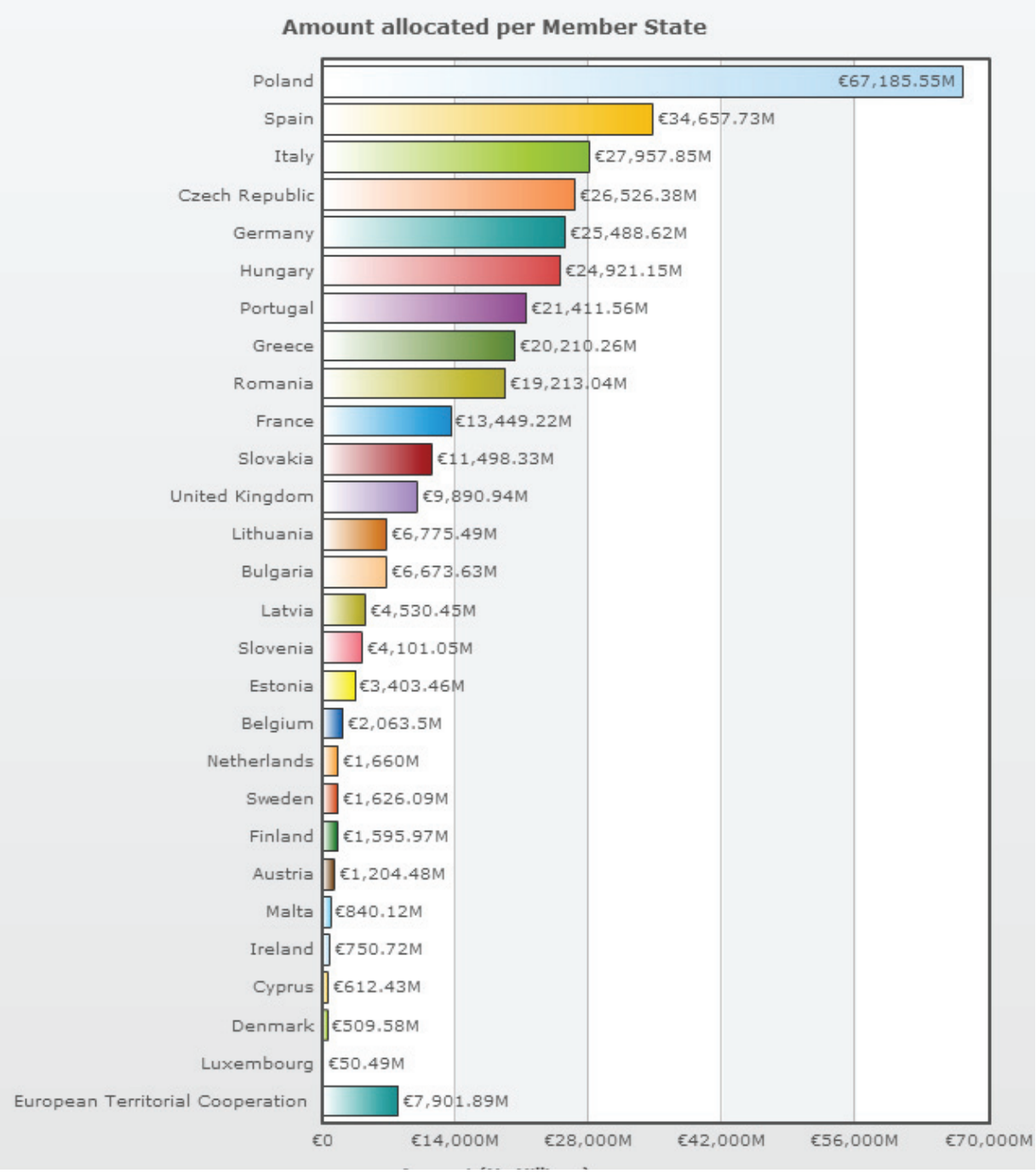


Figure 4.1 - EU funds allocated per MS[3]

3 http://ec.europa.eu/regional_policy/thefunds/funding/index_en.cfm

The chart below shows the percentage of the total funds allocated per Member State that has been paid by the Commission, on the basis of claims submitted. It also indicates the payment rate for territorial cooperation.

These are the combined figures for the European Regional Development Fund, the Cohesion Fund and the European Social Fund.

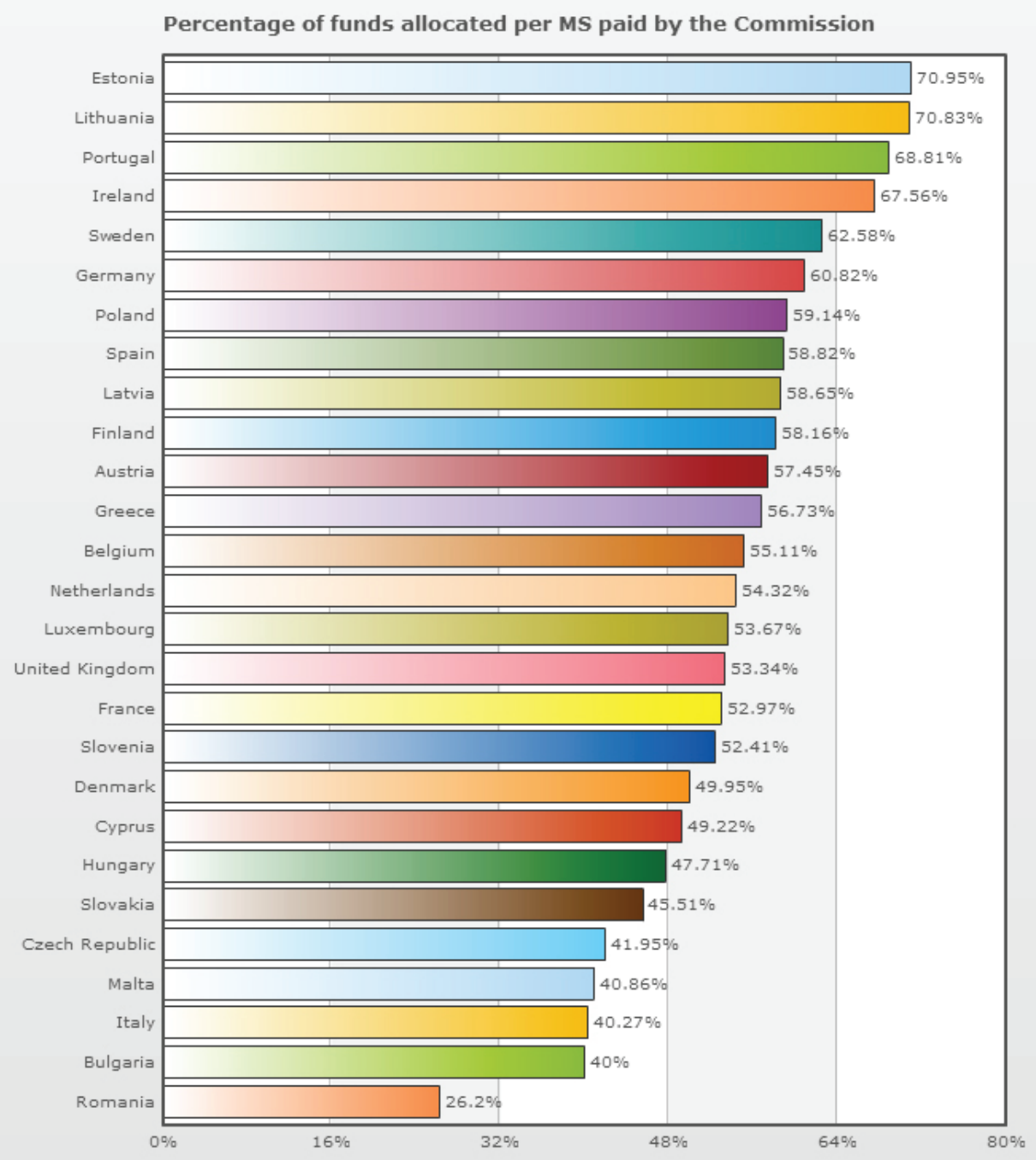


Figure 4.2: Percentage of funds allocated per MS paid by the Commission (13/06/2013)[4]

4 http://ec.europa.eu/regional_policy/thefunds/funding/index_en.cfm

4.2 ICT REGULATIONS IN ONE PARTNER TERRITORIES

4.2.1 ITALY, PIEDMONT REGION (CSI-PIEMONTE)

Piedmont is the second Italian region in terms of geographic extension (25,401.56 sqkm).
The territory is mainly covered in mountains (43%) and hills (30%), while only 27% of the regional area is characterized by plains.
In consideration of the geo-topographical and housing structures, it is particularly complex to provide essential infrastructures to the territory, also because of the dispersion of populated areas and of the large presence of mountains.
Piedmont is a complex region also from the administrative point of view: it is divided, at present in 1,206 Municipalities, 90%, of which has less than 5,000 inhabitants and over 50% has less than 1,000 inhabitants.
The Piedmont production sector consists of 461,564[5] enterprises. Out of them 19,466 (that is 4% of the regional total) are enterprises of the ICT sector.
As far as innovation and technological research are concerned, the ratio between R&D and GDP is 1.82% (2010 data). Piedmont proves to be one of the driving engines of Italian innovation, as in the private sector the ratio between expenditure in R&D of the enterprises and GDP amounts to 1.39%, more than double the Italian average, and considerably above the EU average (1.24% in 2010).
The rate of unemployment in Piedmont amounts to 7.6%, 0.8% below the national average (2011 data). Per capita GDP amounts to 25,645€ (slightly above – by 1.5% – of the national average).
7.3% of the families in Piedmont lives in conditions of relative poverty, while 17% lives in economic deprivation conditions (below the 22.3% national average - 2012 data).

For Piedmont 2012 progress towards achieving key performance targets set up in the European Digital Agenda for Internet usage by 2015 is quite positive. Confirming the exploit in the Internet growth among citizens observed last year, certain indicators (such as Internet regular use, Internet usage by disadvantaged people and level of exclusion) are closest to the targets than those for the European Union. Online shopping and e-government indicators reveal some contrasting facets. If in Piedmont the percentage of users who buy online is lower that the European average, that of those who buy from other EU countries is much higher.
A similar situation emerges for e-government services, whereby the use of more advanced services (such as submitting online forms) is more widespread in Piedmont, compared with the utilization of e-government services in general. The coverage of fixed broadband connections is stable, at around 98% of the regional population. Satellite access is provided for the remaining population living in remote mountainous areas.

5 InfoCamere, StockView data bank, website https://cciaa.intra.infocamere.it/main/, year 2012

As a result of the 2009 agreement between the Italian Ministry for the Economic Development (MISE) and the Piedmont Region, in 2011 and upgrade in the backhaul fixed network was carried out although the services are not yet available[6].

Progress in wireless connections was noticeable and reflects a certain vitality of the telecom sector.

By January 2013, half of the 1206 municipalities are covered by 2 or 3 WISPs. In one out of three there are 4 or more WISPs. The number of municipalities having access to only one WISP halved from 2010 to 2013[7].

Broadband coverage:	99.92% of Municipalities 99.92% of citizens 99.92% of enterprises
Km of fiber laid down (Wi-Pie, line 3)	848.983 km
Km of fiber laid down (Agreement with Italian Ministry of Economic Development)	5.3 km
Wi-Fi operators[8] coverage	Wireless coverage on 100% of the Municipalities of the Region > 3 operators on 86.90% of the Municipalities of the Region
DSL Coverage	85.82% of the territory
UMTS operators coverage	59.29% of the territory

Table 4.2 - Piedmont broadband infrastructures

All the Italian administration of Regions and Autonomous Provinces have, from the early 2000's specific plans dedicated to Information Society. The presence of a strategic framework is important as it makes it possible to define objectives to be reached and actions to be taken on the basis of the needs identified at territorial level and of the action lines defined at national and EU level.

However, the international reference framework changed in 2010, with the publication of the Digital Agenda for Europe. And recently the "Crescita 2.0" (Growth 2.0) Law Decree was approved by the Italian Council of Ministries on 4th October 2012, which includes arrangements for the Italian Digital Agenda.

6 http://www.osservatorioict.piemonte.it/it/images/phocadownload/RapportoICT2012.pdf
7 http://www.osservatorioict.piemonte.it/it/images/phocadownload/RapportoICT2012.pdf
8 Piedmont Region ICT Observatory, September 2013

These arrangements have been elaborated as a result of the of a process that started with the setting up of the Italian Digital Agenda Control Room. The activities for the new national Agenda have been carried out taking into consideration the thematic structure of the DAE. For each of the thematic macro-objectives (infrastructures and security, e-commerce, e-Government and open data, digital skills, research and innovation, smart communities), objectives and actions have been identified both at national and at EU level, as requested by the EU as contribution of the Member States to the definition of the EU strategy.

Piedmont Region	Information and Communication Technologies Strategic Plan	2011-2013

Table 4.3 - Piedmont strategic documents

Law on Research and Innovation – Knowledge Society	Regional Law of 30 January 2006 n. 4	Regional system for research and innovation
Specific law on IT pluralism	Regional Law of 26 March 2009 n.9	Regulations on IT pluralism, on the adoption and dissemination of free software and on the portability of IT documents in the PA.
Interventions supporting the implementation of free and open Wi-Fi access services.	Regional Law of 22 April 2011 n.5	Law aiming at promoting the diffusion of digital interconnections and free connectivity.
Specific law on open data	Regional Law of 23 December 2011, n. 24	Regulations on publication through the Internet, and reuse of documents and public data of the Regional Administration.
Regulation on free wi-fi	Decree of the President of the Regional Council of 29 May 2012	To enable equal access to ICTs, this Regulation establishes that i each office of the Region there is a network infrastructure to issue, in wireless mode, a connectivity service to be used by the public, without time limit, and without the need for the user to be previously identified.

Agreement between Piedmont Region, Italian Ministry of University and Research and Piedmont Regional School Office on the National Digital School Plan	18 September 2012	The agreement aims at: modifying the learning environments so as to make them compliant with ICT needs and in line with the spirit and the objectives of the Italian Digital Agenda; favouring the use of digital contents in didactics; favouring the transformation of the organisation and didactical model, promoting active roles for students, so as to guarantee the creation of skills that go beyond the traditional organisation parameters of space and time in schools and at home; guaranteeing, through ICTs, the full functionality of mountain schools, in which the limited number of students does not enable to set up classes.
Approval of the scheme for the "Schedule Agreement for the development of broad band on the territory of the Piedmont Region" between the Italian Ministry of Economic Development – and Piedmont Region	Deliberation of the Regional Council of 30 January 2013, n. 3-5295	To complete the "Italian Broad Band National Plan" authorized by the EC with State Aid measure n. SA.33807 (2011/N), eventually modified with a view to the 2020 and DAE objectives, the Parties engage to strengthen the joint action aimed at setting up the telecommunication infrastructure supporting the broad band diffusion in the Piedmont Region territory. The action aims at identifying the necessary resources and at coordinating all the activities connected to the implementation of the infrastructure plans that would enable the bridging of the digital divide and a durable support to the development of the regional territory.
2012-2015 Health Plan	Deliberation of the Regional Council n. 167-14087 of 3/4/2012	The implementation of a SISR (Regional Health Information System) to maximise the system performances in favour of the operators of the Regional Health System, facilitate the access to services by citizens and to rationalise expenditure. For this purpose, it is necessary to develop a "regional integrated health care platform" that, developing ad hoc centralised services and connecting the Regional Information System to the systems of all the regional Health Agencies, ensures: • interoperability of the clinical data; • dematerialisation of GP referrals, of specialist visits reports, of clinical records and of different forms; • access, also telematic, to all administrative services (ticket on line payment, remote booking of health visits, consultation and on line collection of reports).

2011-2013 Programme for Local Public Transport Services	14th May 2012	The Programme includes some ICT related interventions: BIP electronic ticket Project, “Bus on demand” Regional Platform Project, MOVIbyte Project.
Smart card for the Piedmont university system	14/5/2012 con D.D. N. 94	A single smart card to access functions normally present on different cards such as personal identification, access to self-service stations, payment of meals in university restaurants. In addition to these services that are typical of the university world, an integration is to be made adding the possibility to access e-government system, through Digital Certificates, so that the new card becomes an e-id tool. A framework for an Agreement was approved on 14/5/2012 between the Piedmont Region, EDISU Piemonte and Universities of Piedmont on the "Evolution of Piedmont universities smart-card for 2012/13 - 2015/16 " project, to continue the university smart card project over the years.

Table 4.4 – Piedmont documents on Information Society[9]

	Period	Regional funds	National funds	EU funds	Other funds	Total
Piedmont	2007-2013	688.281.622	52.212.270	21.639.434	-	762.133.325

Table 4.5 – Resources programmed in the strategic plans for Infomation Society[9]

Values x 1.000	Inter-opera-bility	Local PAs	Digital inclu-sion	Territo-rial IS	IS for enter-prises	Info-mobility	Demate-rialisation	R&D	H-health
Piedmont	14.775	20.404	95	13.121	26.724	na	2.006	2.325	na

Table 4.6 – Resources allocated in the main sectors of intervention[9]

A novelty of the recent past, from the point of view of the governance, has been the start-up of the Digital Agenda Control Room. Regions and autonomous Provinces have actively participated to the meetings of different working groups and appointed a representative in the Conference of the Presidents, which is responsible for the Digital Agenda. This approach made it possible, in the context of a consolidated experience of interregional coordination, to have a single experienced actor responsible for the design of the strategy and the management of resources.

9 http://www.cisis.it/dir_allegati/eventi/riir/Rapporto%20RIIR%202012.pdf

In each Region, community networks are the governance tools that are gradually being strengthened, partially also because of the need to transfer to the territory the innovations defined at national level and the standards defined at interregional level. In Italy there are 16 community networks at present, which are organised as regional coordinators. Another governance actor on the territory (and one of the most active participants in the community networks) are the in house agencies that support most of the Regions in the implementation of the interventions and in the definition of common technological and organisation standards, ensuring continuity and stability to the activated policies.

The Piedmont ICT Observatory is managed from an operational point of view by many entities of the Piedmont Region in the ICT sphere, for activities of a more scientific nature, together with those they considers useful for the year's activities.

The Piedmont ICT Observatory was founded in 2004 as a tool to support the strategic planning of the Region in building the Information and Knowledge Society in Piedmont.
When in 2005 the strategic WI-PIE Programme was launched on broadband, the Observatory had the function of governance of the programme itself, monitoring both local requirements and achieved results.
Now that the WI-PIE Programme is complete, the Observatory continues to be an "observation point" in support of regional ICT policies.
The Observatory has as its main task the support of Regional policies in place, interfacing:

- political decision-makers, providing summary information useful in evaluating results achieved in implementing undertaken activities and suggesting scenarios concerning that being put in place at a national and European level;
- economic entities, to stimulate greater involvement in opportunities provided by public administration, creating moreover a critical tool on the quality of achieved results;
- citizens, to facilitate the development of a "*common sentiment*" to facilitate greater awareness of the possibilities offered also thanks to public administration, collecting at the same time existing requirements.

The field of observation therefore covers:

- evaluation of public policies for the development of the Information and Knowledge Society;
- analysis of technological and application trends which, in general, relate to ICT;
- exploitation of innovative regional, national and international experience.

4.2.2 ITALY, FRIULI VENEZIA GIULIA REGION (INSIEL)

The Autonomous Friuli Venezia Giulia Region is located in the extreme north east of Italy and is bordered to the East by Slovenia and to the North by Austria. There are 4 provinces (Trieste, Gorizia, Udine eand Pordenone) and 216 municipalities, 1,235,000 inhabitants on an area of 7,845 km.

The path in the ICT world started in the 1974 with the foundation of Insiel. Today, Insiel has in charge all the Regional Information System that includes: central regional directorates, local authorities, regional healthcare bodies, the Regional Network (RUPAR), ERMES (the Regional Program for Infrastructure of Information and Communication Technology Development and FVG WI Project. Some figures on ICT in FVG:

- RUPAR: 1,260 entities
- ERMES 66 municipalities and 120 user of the public administration
- FVG WIFI:13 municipalities activated, 2,500 registered users, more than 300 daily users, more than 30 Gb/day
- 62.8 is the degree of ICT utilization
- 56.2 is the degree of ICT readiness

Insiel SpA is the in house ICT-providing enterprise owned by the Friuli-Venezia Giulia Region, the governmental entity that administers the North East portion of the Italian territory.

Insiel main focus is that of providing services to the PA and to the citizens in the region, in different areas and sectors, particularly in two macro areas: local government and eHealth.

Local government solutions target the citizens in the territory as well as different PA bodies (Directorates of Central Regional Administration, Provinces, Municipalities, Mountain Communities, Public Institutions,…) and involve dedicated PA management systems, regional cartography solutions and online services for the citizen, providing support to payments or administrative procedures (access to own medical referees, management and payment of the school canteen service for children, labour information services).

eHealth solutions are dedicated to hospitals and other healthcare institutions (e.g. nursing homes) and to local health authorities; they regard both the healthcare administration and the hospital management.

Besides, Insiel is involved in the deployment and maintenance of dedicated infrastructure to ensure the availability of fast Internet connection (broadband) in the territory and the access to the services via high quality equipment (hardware and software) in the PA offices and in the other publicly administered environments.

Insiel provides this wide portfolio of solution and services taking care of their planning, development, deployment and maintenance at different levels. All these phases are monitored, collecting a number of parameters describing and quantifying the status and advancement level of the various activities. These parameters are periodically communicated to the Region as part of their decisional control over Insiel activity. Insiel collects on its own a number of parameters and indicators for each area of service.

These parameters are communicated to the Friuli-Venezia Giulia Region in the quarterly reports and at the end of each year in the final annual report. Through these reports, the Region is informed of the progress of the activities planned and scheduled under its own guidance and directives. In this perspective, the Region can intervene to re-programme and re-schedule activities on the basis of a contextual change of priorities, correct the funding distribution, etc..
Insiel operates under the specific regional law on ICT n. 09/2011[10] "*Protocol of the regional integrated information system of Friuli-Venezia Giulia*". According to the provisions of this law, the Region has a unique Integrated Information System (SIIR) that includes IT solutions, applications, databases, office procedures and network, used by all regional departments, local bodies, Health structures and managed by Insiel. SIIR services are aimed at rationalizing the regional services, improving the efficiency and good functioning of the whole Information System, promoting the informatics interoperability and transparency. The relationship between the Region and Insiel, including the services Insiel has to provide and the regional control over Insiel activities, are defined within a protocol signed by the Regional Government and valid for 9 years.
The regional law 09/2011 makes explicit reference to other laws valid on the national territory, such as that referred to the treatment of sensitive data (law decree 196/2003) and that referred to Digital Administration (law decree 82/2005). The former details which data are considered personal and sensitive and how they must be treated by the PA in the various sector (public registry, hospital, etc.); the latter defines the validity criteria of digital documents, digital signatures, transmission of funds and data for the PA.
In compliance with the regional law 09/2011, every three years Insiel and the Region design a strategic plan for the forecoming three years defining the company vision and mission for the long term along with the concrete objectives for the period. The plan is approved by the Region and aligned with its requirements. Moreover, every year, Insiel designs an operative plan for the upcoming year, highlighting the key actions to undertake in the short period, to ensure the timely and proper fulfilment of the strategic objectives. The Plan includes an analysis of the on-going projects, their priorities and required effort, along with budget considerations.

Friuli Venezia Giulia Region	Policy and Programming Report	2009 - 2013
	Information Systems 3 year Plan	2012 - 2014

10 http://lexview-int.regione.fvg.it/fontinormative/xml/xmllex.aspx?anno=2011&legge=9

Regional Law 18/05/2006 n. 8	Special interventions for the diffusion of IT culture	Specific law on electronic citizenship
Regional Law 18/03/2011 n. 3	Regulations on telecommunications	Specific law
Regional Law 14/07/2011 n. 9	Discipline of the regional integrated information system of Friuli Venezia Giulia	General law

Table 4.7 - Fruili Venezia Giulia laws on Information Society

	Period	Regional funds	National funds	EU funds	Other funds	Total
Friuli Venezia G.	2007-2013	574753898	3.965.239	2.550.000	2508000	583.777.137

Table 4.8 - Resources programmed in the strategic plans for Information Society[11]

Values x 1.000	Inter-opera-bility	Local PAs	Digital inclu-sion	Territo-rial IS	IS for enter-prises	Info-mobility	Demate-rialisation	R&D	H-health
Friuli V. G.	na	na	na	na	na	na	na	na	42.568

Table 4.9 - Resources allocated in the main sectors of intervention[11]

As established by regional law 09/2011, the services Insiel has to provide to the Region, the indicators required to measure the quality of the services and the reporting frequency aimed at the regional control over Insiel activities, are defined within a protocol signed by the Regional Government and valid for 9 years.

Insiel services refer in particular to four areas of activities, that undergo both the internal monitoring and the Regional control:

- regional administration information system (SIAR);
- local administration information system (SIAL);
- social and Health regional administration system (SISSR);
- public regional network (RUPAR).

For each area, Insiel monitors the number of activities running in the period, their category (software design, analysis, development, maintenance, installation,...), the associated costs and the timetable with respect to the foreseen deadlines and schedule. For some crucial projects and activities requiring a stricter control over its good development, specific and detailed reports are periodically provided besides the normal accounting of the abovementioned parameters, in order to describe the progress of the activities.

11 http://www.cisis.it/dir_allegati/eventi/riir/Rapporto%20RIIR%202012.pdf

For the activities requiring specific technical support (such as the deployment or maintenance of hardware or the installation of software in PA offices), other indicators are monitored, such as the number and type (software, hardware, helpdesk, ...) of the interventions in the period and the related Service Level Agreement (SLA).

4.2.3 FRANCE, ÎLE-DE-FRANCE REGION (LA FONDERIE)

The Ile-de-France Region is the most populated French region with 11.8 millions of inhabitants (19% of the national population). Its GDP accounts for almost a third of the national GDP and its administrative organization consists of 1,281 cities and 8 departments.

New technologies play a key role for the region, since the Ile-de-France has the most important high-skilled IT workforce. Among European regions, the Ile-de-France region is also the first one for the R&D expenditure, the second one for the number of filed patents and it regroups 24,000 IT firms.
In Frances, legislation on ICT involves several organisations at national and local level.

At a national level:

- the Minister of digital economy decides broad policy orientations[12]. Its supervising Ministry is the Ministry of economy[13];
- ARCEP[14], The French Telecommunications and Posts Regulator, deals with regulatory issues in the telecommunications sector;
- CNIL[15]: The National Commission on Informatics and Liberties (Commission nationale de l'informatique et des libertés) is responsible for ensuring that information technology remains at the service of citizens, and does not jeopardize human identity or breach human rights, privacy or individual or public liberties;
- National Council of digital (Conseil National du numérique), an independent advisory committee on digital topics aimed at advising the government.

At a local level: two kind of local authorities are in charge of digital development (regions and urban communities). Regions invest in optical fiber in partnership with private operators and urban communities also lead economic development policies. It is worth mentioning that in both cases (national and local), digital development is linked economic development as a transverse innovative factor.

The Île-de-France region has a framework document[16] that describes the main goals of its digital agenda and its intervention resources. This document is part of the global regional economic development strategy.

12 http://www.redressement-productif.gouv.fr/economie-numerique
13 http://www.redressement-productif.gouv.fr/
14 http://www.arcep.fr/
15 http://www.cnil.fr/
16 http://mariane.iledefrance.fr/cindocwebjsp/temporaryfiles/to37184310/DL_065182/RAPCR70-11RAP.pdf

There are several organisations in charge of monitoring ICT activities.

Monitoring Institutes at a national level (not focused on digital issues):

- INSEE[17], the National Institute of Statistics and Economic Studies (Institut National de la Statistique et des Études Économiques:) is a Directorate General of the Ministry of the Economy, Finance, and Industry. It regularly provides information on digital issues[18];
- CRÉDOC[19], the Research Institute for the Study and Monitoring of Living Standards (Centre de Recherche pour l'Étude et l'Observation des Conditions de Vie), is a research and survey organisation that caters to players within every facet of social and economic concerns. Each year it provides an annual study on digital use's appropriation[20];
- the Centre of Strategic Analysis[21] is a research-based advisory institution under the authority of the Prime Minister. Its mission is to advise the government in defining and implementing its strategic policies on economic, social, environmental and technologic matters. The centre released several studies on digital issues, including the digital divide[22].

Monitoring Institute at a national level (focused on digital issues):

- the Digital Observatory[23] was created to provide to public authorities and economic decision makers a regularly updated information on digital issues and on its appropriation by the society.

Regional Observatories:

- at a local level, the Observatory of the Bretagne region[24] regularly provides inputs and studies on digital subjects that can be used for others regions;
- Observatory of the Midi-Pyrénées region[25];
- Observatory of the Rhône-Alpes region[26];

As regards the Île-de-France region, La Fonderie the regional agency (ex ARTESI from 1998 to 2012) plays a role in monitoring emerging topics and issues with the aim of anticipating and supporting profound changes induced by digital era.

17 http://www.insee.fr
18 http://www.insee.fr/fr/themes/document.asp?reg_id=0&ref_id=T13F063
http://www.insee.fr/fr/themes/document.asp?reg_id=0&ref_id=ip1340
19 http://www.credoc.fr
20 2012 study: http://www.credoc.fr/publications/abstract.php?ref=R290
21 http://www.strategie.gouv.fr
22 http://www.strategie.gouv.fr/content/le-fosse-numerique-en-france
23 http://www.observatoire-du-numerique.fr
24 http://www.marsouin.org/
25 http://opst.iut-tlse3.fr/
26 http://www.pole-numerique.fr/lepolenumerique-196.html

La Fonderie is then at the same time a think tank and a do tank on the following topics:

- changes at work;
- economic development (digital ecosystem and digital appropriation of industrial SMEs);
- Open Data: release of public data;
- public territorial innovation: innovative publics policies implemented by local public authorities;
- digital social innovation;
- Internet of things and Makers movement.

4.2.4 CYPRUS (OCECPR)

The Office of the Commissioner of Electronic Communications and Postal Regulation (OCECPR) is the National Regulation Authority (ex-ante regulation) for Electronic Communications in Cyprus. Following from its competences OCECPR is a key stakeholder in the implementation of Cyprus's Broadband diffusion Strategy, "Digital Cyprus", with the main task of formulating ex-ante Regulation to boost investment in broadband networks and promote the provision of broadband access services to the public.
OCECPR as part of its operations has set up an Observatory for the Electronic Communications market through witch it aims to provide stakeholders (operators, consumers, investors, politicians etc) with informative insights on the status of the market as this is evolving through investments, operator business plans, consumer trends and the impact of regulation.

In the process of Observatory activity, OCECPR collects information from all the licensed providers of electronic communication services and networks on a quarterly basis.
The observatory activity at OCECPR spans the whole spectrum of electronic communication services and networks, covering market shares, market trends, network coverage and service penetration. OCECPR also consult with the office of the statistical service in Cyprus (CYSTAT) to verify data concerning population, households and income status.

The activities carried out by OCECPR are:

- collection of information on a quarterly basis for all licensed electronic communications providers:
    - broadband (fixed and mobile)
    - fixed Telephony
    - revenues of electronic communication providers
    - mobile telephony
    - leased lines
    - phone directories.
- completion of questionnaire for various organisations that Cyprus is obliged to provide info such as DG Connect scoreboard, ITU, etc.;

- publication of statistical bulletins on OCECPR website for Broadband, mobile and fixed telephony;
- provide info to other State agencies and services as per individual requests made;
- the info is also used for OCECPR purposes such as market analysis and other regulatory issues that statistical information might be required.

About ICT in Cyprus[27], in 2012, standard fixed broadband covered more than 99.95% of homes in Cyprus (95.5% in the EU). At the same time, Next Generation Access capable of providing at least 30 Mbps was available to 73.1% of homes (53.8% in the EU).
Cypriots are below average users of the internet with 58% of them using the internet at least once
a week, an increase of 4 pp. since 2011, but still far below the EU average of 70%. In addition, frequent users (i.e. daily users of the internet) account for 47% of the population, up from 40% in 2010 but below the EU average of 59%. With regard to disadvantaged people, the rate of regular internet usage is 37%, 17 pp. below the EU average of 54%. As for people who have never used
the internet, they account for 36% in 2012, down from 45% in 2010 but still quite above the EU average of 22%.
In 2012, 30% of citizens in Cyprus made use of the internet for eGovernment services, rather similarly to the previous year. 15% sent filled-in forms. These rates are below those of the EU27 average,
of 44% and 22%, respectively. Also noteworthy is the fact that 85% of Cypriot enterprises are using the Internet for interaction with public authorities, in line with the EU27 average of 87%.

The Council of Ministers with Decision No. 73.162 dated 08/02/2012 approved the document entitled "Digital Strategy of Cyprus"[28] (vision, strategic objectives, measures and actions) which is a comprehensive approach to the promotion of Information Society, for the period 2011-2020. The vision of Digital Cyprus is "the information and communication technologies to support the development and competitiveness of the economy and citizen participation in the social, cultural and political domains". The policies promoted are a result of different institutions working on their targets that are monitored by Department of Electronic Communications of the Ministry of Communications and Works that issues an annual report. All departments involved have a representative on an advisory committee to the Ministry for the digital agenda for Cyprus where they discuss progress and problems that is faced with.

27 https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/CY%20%20-%20Broadband%20markets.pdf
28 http://ec.europa.eu/enterprise/dem/initiatives/1678/digital-strategy-cyprus

4.2.5 POLAND, ŚWIĘTOKRZYSKIE REGION

Świętokrzyskie Voivodeship is located in the south-eastern Poland, and its regional capital is Kielce. The Świętokrzyskie Voivodeship is an industrial and agricultural territory, with a high degree of concentration of traditional industries related to the production and processing of metals, mining and processing of mineral resources and food production. A very clear distinction between the industrial North and agricultural South forming base for organic food production is characteristic for the Region. Despite the industrial - agricultural character of the region, a steady increase in investments and the growing importance of the development of the ICT sector is observed. Monitoring activities are undertaken at the regional level.

According to a study carried out on the behalf of the Ministry of Labour and Social Policy in the publication of Social Diagnosis 2011, the percentage of households with access to the Internet was 52.3%, and the percentage of people aged 16+ who use the internet in the 2011 was 51.1%. The percentage of people who have never used a computer is 48% and has a tendency to decrease. Each year the number of Internet users is gradually increasing. This phenomenon can be observed mainly among the mature citizens (50+), but still more than half of them do not use the Internet at all, and among the 60+ the rate of those not accessing internet is even higher - 80% of the elderly population does not use the Internet at all.
The highest percentage of Internet users can be observed among students and people with higher education (90%). Among those with primary education, almost 70% does not use the Internet. Differences arising from the use of the Internet are caused by differences between urban and rural areas.
Access to administration Webs in the Voivodeship is quite good (96% of municipalities have a website). Status of development of administrative services in the Region is at a particularly low level. The main reason of this status is lack of an electronic signature.
Higher education institutions (universities and polytechnics) are relatively well equipped with ICT tools and participate in EU projects, thus accessing to additional resources and getting in contact with the use of innovative information and communication technologies.
In the corporate sector, 90% of businesses use technology and the use of ICT solutions, mainly in the fields of banking - 78%, trade - 50%.

At present, ICT monitoring is carried out mainly in the field of implementation of projects co-financed by the European Union. These projects are realized by local government and its units (hospitals, support centres). At regional level they are realized by the Office of the Information Society of the Marshal's Office (regional projects).
Due to lack of institutions in the region which would be able to monitoring using of ICT this task must be undertaken by the Marshal's Office. However, taking into account directions of development and investments in ICT sector, there is a need to create the unit responsible for development of regional information systems because small local government units will not be able to develop their systems themselves due to high costs.

That is the main reason for which the ICT use monitoring centre should be created in the Region during the next years. In this centre the ICT Observatory could be located. Such solution will allow to better monitor the needs and better use funds on ICT at the same time, thus yielding a greater impact on development of ICT sector in the Region.
It must be highlighted that the Region is running 3 major projects: the construction of backbone network of approximately 1,400 km, the creation of spatial information system for all local government units in the Region and the development of information systems in local governments in the Region.

The Świętokrzyskie Voivodeship Regional Council in 2005 adopted the Regional Development Strategy 2020 of the Świętokrzyskie Voivodeship, which specifies tasks and directions of development of information society and investment activities in the ICT sector in the Świętokrzyskie Region. The mission of the Strategy is to improve the level and quality of life in the Region.
The Świętokrzyskie Voivodeship Regional Development Strategy in Priority Axis 8 sets the direction for the business. Information society - increasing innovation economy, Measure 8.1.
Support for economic activity in the field of electronic commerce to stimulate the development of e-services by supporting projects of micro and small enterprises envisaging the provision of electronic services and the possible creation of digital products necessary to provide these services.
The aim of the Strategy is to develop technical and social infrastructure systems by:

- supporting of development of information systems, broadband access to the Internet and integrated platform of electronic services;
- improving services for inhabitants of the region, with particular emphasis on use of information technology;
- increasing the diversity of fields of education, the promotion of innovative forms of education (e.g. e-learning);
- investing in development of regional telecommunication systems and electronic systems.

So projects for the development of information infrastructure networks are supported, with particular emphasis placed on providing high-speed Internet access (fiber-optic network and radio).
It is assumed the development of electronic commerce, including telework, and the widespread use of the information society in the work of public institutions - government, health, education, scientific research institutions. Infrastructure broadband Internet access for the public and commercial.
At present, there is an updated Regional Development Strategy of the Świętokrzyskie Voivodeship, which takes into account the areas of ICT Innovation Strategy Voivodeship.
It is planned to adopt updated strategy this year. At the central level is built Electronic Platform of Public Administration - E-PUAP which is a system that allows sharing of services and the available alternative method of signing electronic documents called Profile Trust, which greatly increases the possibility of submitting documents electronically.

Świętokrzyskie Voivodeship Province does not presently have an ICT Observatory, but it does monitor the following areas:

- the use of ICT in business and its environment, use of innovative solutions;
- the use of information and communication technologies - ICT in public administration;
- the direction of higher education and the extent of the use of ICT in education;
- the use of technology and information - communication in the household.

4.2.6 POLAND, ŁÓDŹ REGION

The Łódź Region is situated in the centre of Poland, and its regional capital is Łódź. Currently, because of the restructuring of the industry, it is a place where new technologies are developed. The Łódź Region is an important research centre in terms of strategic planning and shaping pro-innovative policies. One of the most dynamic field is the ICT sector. Monitoring activities are undertaken on a regional level.

In the Łódź Region 56% of households have access to broadband infrastructure. The percentage of people who have never used a computer has decreased to 33%. Each year there is about 3% more Internet users than the previous before. The percentage increase is mainly observed among older people (50+), although still more than a half of them do not use Internet at all and among 60+ the indicator is even higher - 80% of non-users.

The highest percentage of Internet users is among students and people with university degree (90%). Among those with basic background, almost 70% do not use Internet.

The difference in Internet usage may also differ from municipal and rural areas. In small areas 60% of inhabitants lack digital literacy.

More than 90% of entrepreneurs use ICT solutions, mainly connected with customer service (70.9%), commercial activities (50%), cooperation with public administration (48%), finances (47.2%), human resources management (45.3%), promotion and marketing (42.9%).

Higher institutions (universities) are relatively well equipped with ICT tools. Primary and high schools are not that well equipped. Taking into account the number of computers or whiteboards, the condition is bad. There are only 26 computers and 3 laptops in one school. Students have a limited access to computers. Teachers communicate with parents via telephone. Only a slight percentage of schools use Internet.

PAs also lack competences in ICT use. 83% of PA offices use Internet and most of them possess basic ICT tools, such as Intranet, own server, technical software. However, the most popular way of communication is through telephones, e-mails and traditional post. PAs do not use on-line forms, documents flow nor Instant Messengers.

Monitoring activities are carried out by the Marshal's Office of the Łódź Region, Information Society Unit of the Digitization Department. The main responsibilities of the IS Unit are among others: designing and monitoring the programmes for the IS development in the region; coordinating initiatives and projects aiming at IS development; undertaking activities in order to absorb EU funds for ICT projects; educating the society in terms of modern technologies; promoting e-administration.

The IS Unit collects information and data from statistical offices in Poland and EU, as well as communities and districts located in the region. It also focuses on researches undertaken by external companies specialised in ICT, chosen in public tenders.

ICT regulations are the result of consultations with the communities of the Łódź Region.
The regional responsibilities in terms of ICT are based on the sector strategy accepted by the Board of the Łódź Region on 17th September 2007. The strategy has been consulted with the communities of the region.

The i-łódźkie 2013 – Programme for the development of the IS in the Łódź Region by 2013
The Łódź Region was one of the first regions in Poland to develop an Information Society strategy. It has specified the priorities for the development of the information society (e-development).
To evaluate the level of e-development, a research methodology was prepared by the "Cities on Internet" Association. According to the evaluation, no districts with a very high level of e-Development were found. The highest value has been achieved by the Łódź city along with the Skierniewice district and Łódź Wschód district. Three basic priorities were identified:

- human capital for e-development (effective utilization of information available online; using tools and services available online at work; living among ICT solutions, such as e.g. distant learning);
- economic growth based on innovative ICT solutions (innovation initiatives based on utilization of ICT products and services);
- citizen-friendly online services (initiatives of self-government organisations in order to develop the system of public e-services).

The key issues concern the effective utilization of information resources available online, exploiting online services, developing ICT solutions, utilizing ICT products and services, supporting the initiatives of self-government administration and e-public services.

The Development Strategy for the Łódź Region 2020
It indicates vision and mission of the region. It has elaborated the strategic challenges of the regional development, among which is the digital society. According to the strategy, entering the phase of the Information Society may cause a strong development of the ICT services as well as digital solutions connected with the e-development of the region. It is predicted that until 2020 broadband accessibility and the use of digital technologies will be strengthen, white spots are going to be eliminated and high-speed broadband is going to be provided. Investments on e-government will enable the creation of an effective administration of the 21st century. A conscious digital society will be one of the innovation pillars. Among the main challenges are: technological reorganisation of the economy creating conditions for the diffusion and absorption of innovations as well as network between enterprises, R&D and business environment institutions; access to high quality public services and ICT infrastructure.

It has elaborated several key objectives for the IS development in the Łódź Region.

Pillar 1 - Economics Cohesion

Objective nr 1 – knowledge and innovation - based economy

Strategic action 1.1 – Modern technologies development for the smart regional specialisation

Pillar 2 - Social Cohesion

Objective nr 5 – High standard and access to public services

Strategic action 5.4 – Development of digitalization and digital services in public sector

5.4.1. Development of e-administration and dissemination of e-services

5.4.2. Interactive communication tool for self-government and citizens

5.4.3. Creating databases

Attention is being paid to the development of digital literacy in the education process on every level (especially by creating educational and e-learning platforms). Thanks to the development of digital services, access to public services will be improved.

E-administration development and dissemination of e-services constitute a very crucial interactive cooperation tool for the citizens, NGO's and other social and economic structures so that they are able to decide about the regional development. Stimulating local self-governments' activities in terms of creating local, regional and sub-regional integrated websites and social media, will enable a wider access to public services. Creation of databases, among other things, Regional Territorial Observatory, updating databases, processing and storing of information, security, are also very important.

Pillar 3 - Spatial Cohesion

Objective nr 7 – High quality and accessibility to transport and technical infrastructure

Strategic action 7.1 – Strengthening and development of transport and ICT systems

7.1.4. – improving access to ICT network and ICT services: improving access to information and ICT services through extension of backbone infrastructure and local accessibility network, promoting ICT, enhancing access to broadband Internet

Regional Innovation Strategy for the Łódź Region LORIS 2030

According to the strategy, among the key technological areas that lead to the regional development are information and communication technologies.

In the documents several priorities have been created. One of them is Priority 3: Managing innovations in the region, Key objective 3.4: Creating framework to stimulate cooperation and entrepreneurship, Action 5: IS services extension.

The innovative potential of the region is inseparably linked with accessibility to ICT infrastructure. The right quality of modern technologies in terms of the information society is essential to develop a dynamic digital market.

IS services provoke enhancement of innovativeness and competitiveness through modern infrastructure and services and products connected with e-business.
The initiatives to be developed:

- expansion of broadband in the region;
- better access to e-services;
- improving digital literacy;
- promoting ICT usage among SMEs.

The Łódź Region does not have an ICT Observatory, but it undertakes varied monitoring actions. It is being done on a regional level.

The detailed analysis of the Information Society development state in the Łódź Region has been done through the report *"Innovative Potential of the Łódź Region in terms of ICT – identification of digital gaps"*. It has been elaborated thanks to the project *"Innovation Capital 2009. Updating of Regional Innovation Strategy in the Łódź Region"*, co-financed by the European Social Fund, Human Capital OP.
The overall aim of the research was to identify digital gaps among 5 target groups: citizens of the region (households), enterprises, public administration and higher education institutes.
With reference to this, 6 research sub-projects have been analysed covering:

- households and the citizens of the region (research areas: use of ICT, digital literacy, barriers in the use of ICT, digital gaps, lifestyle and social capital);
- enterprises in the region (research areas: use of ICT in order to manage information flow in the company and its surrounding, the ability to use innovative solutions, digital gaps, stipulating the sort of support and trainings, barriers in the use of ICT, potential, development state and attitude towards ICT by SME);
- public administration entities (on community, municipal and district level):
    - research areas: use of ICT, digital literacy, barriers in the use of ICT, digital gaps, stipulating the sort of support and trainings, attitude towards innovations and ICT development.
- educational institutes belonging to Education Office in the Łódź city (research areas: the use of ICT in educational entities, local accessibility of R&D services, barriers in the use of ICT, training needs in terms of ICT);
- universities located in the Łódź Region (research area: the use of ICT, digital literacy, activities undertaken in order to develop innovative ICT, research potential, investments on ICT, cooperation between R&D and local entrepreneurs);
- employees of the Marshal's Office of the Łódź Region who occupy with the Regional Innovation Strategy (research areas: activities on RIS, innovative activities in terms of RIS for the knowledge-based economy, cooperation between entrepreneurs, R&D sector, training needs, innovative public administration).

Digital gaps identified:

- households – the problem does not lay in the lack of equipment or Internet access, but rather in the lack of motivation, knowledge and competencies in terms of computers and Internet usage;
- enterprises – there is a good access to ICTs, but entrepreneurs lack knowledge on how to use them. Lack of financial support and a difficult access to structural funds are indicated as a barrier in ICT implementation;
- public administration – although the ICT infrastructure is good, people believe that ICTs increase the administrative burden;
- Universities – The digital gap mainly concerns research employees and lecturers;
- educational institutes belonging to Education Office in the Łódź city – new technologies are associated with additional activities;
- employees of the Marshal's Office of the Łódź Region who deal with the Regional Innovation Strategy – lack of cohesion in undertaken activities, difficulties in procedures, lack of creative attitude among employees of the Marshal's Office of the Łódź Region.

Moreover, the Marshal's Office of the Łódź Region undertakes varied projects, co-financed by the EU funds. They aim at raising digital competences of entrepreneurs and the population of the region (*"Innovation Capital 2009. Coach training in terms of IS and innovations"*, *"Modern self-government – raising professional competence of Łódź Region territorial self-government officials"*); providing services and applications available online (*"Developing integrated system of public eServices in the Łódź Region. The Gateway to the Łódź Region"*, *"in4health – Regional Online Healthcare Services"*, *"Services of the Regional Medical Information System of Łódź Region"*); providing infrastructure, e.g. access to broadband Internet services (*"Łódź Regional Broadband Network"*, *"Infrastructure of the Regional Spatial Information System"*).

ICT Observatory – broadband, e-administration, e-learning, Public Internet Access Points

ICT Observatories are a monitoring system for the Information Society activities in the region. It is a regional policy tool, so the region will be responsible for its creation and development. It should be led by regional authorities and managed by the Marshal's Office of the Łódź Region. The scope of research will focus on the whole region, as gathering data concerns the region. Target. The target groups relate to all social groups interested in ICT:

- regional authorities and decision making bodies;
- regional policy actors;
- enterprises and research institutions;
- citizens.

The main objectives are:

- broadband monitoring – analysis of the broadband infrastructure in the region;
- ICT technologies in practice – dissemination ICT process documentation and its impact on the society and socio-economic system;
- good practice analysis – collecting good practices throughout the region and comparing them to international standards;
- ICT impact on development strategies of the region;
- conducting a regional data base – gathering studies on ICT in one place and its regular updating;
- data security.

From a technical point of view setting up an ICT Observatory demands the creation of a central regional server or a group of servers on which all the data will be collected and gathered. Regional ICT Observatory is a crucial factor of the information society development. It promotes information and communication technologies in varied market sectors.
The Łódź Region can follow the example of other European regions, e.g. Piedmont region.

Launching ICT Observatory in Łódź
Scope - Elaborating a Business Plan on ICT Observatories using the structure below:

Vision
Legal issues
Initial costs
Credit costs
Commercial
Suppliers
Organization and management
Employer and employees
Staff descripition
Activity
Market analysis
Competition analysis
Demand analysis
Marketing
Conclusions

The above scope may vary depending on circumstances. Initial conditions:

- ICT Observatory vision acceptance;
- decision making process in terms of the Implementation Plan realization.

4.2.7 UK, CITY OF MANCHESTER (MCC/MDDA)

Manchester is a city and metropolitan borough in Greater Manchester, UK, situated in the south-central part of North West England with a population of approximately 500,000. Manchester is located within the Greater Manchester Area, the UK's second largest urban area, which has a population of 2.5 m. Manchester City Council (MCC) is the administrative body (of which Manchester Digital Development Agency – MDDA is a department) and is at the centre of the Greater Manchester (GM) metropolitan county. Manchester was at the forefront of the Industrial Revolution in the 19th century, and was a leading centre for manufacturing. The city's economy is now largely service-based and, as of 2007, is the fastest growing in the UK, with inward investment second only to the capital. *Manchester's State of the City Report*[29] identifies financial and professional services, life science industries, creative, cultural and media, manufacturing and communications as major activities. The city was ranked in 2010 as the second-best place to do business in the UK and the twelfth best in Europe.

The ten authorities in GM are the first in the country to develop a statutory Combined Authority[30] and co-ordinates key economic development, regeneration and transport functions. The Greater Manchester Combined Authority (GMCA) was established in 2011 and allows for constituent district councils to pool resources governed by a number of commissions. There is no specific ICT commission and technology is seen as a cross cutting element. A revised GM strategy was published this year[31].

The overarching strategy for the city is Manchester's Community Strategy – the vision for the city by 2015[32]. Called The Manchester Way it is built around the priorities of growth, people and place. Manchester's Local Area Agreement (LAA) – this is a is a 3-year agreement between central government in the UK and a local area working through its Local Strategic Partnership (they bring together representatives from the local statutory, voluntary, community and private sectors to address local problems, allocate funding, discuss strategies and initiatives). The LAA contains a set of improvement targets which local organisations are committed to achieving and a delivery plan setting out what each partner is intending to do to achieve those targets. It sets out the targets to reach by 2015.

In Greater Manchester the figure for accessing the internet is 85.9% with the corresponding percentage of "never used" (August 2013 - ONS). Currently 43.6 million adults (86%) in the UK had used the Internet. There are 7.1 million adults who had never used the internet, representing 14% of the adult population. This places the region as whole in line with the national average. These figures are published by the Office for National Statistics[33]- "Internet Access Quarterly Update" bulletin.

29 www.manchestercommunitycentral.org/briefing/manchester%E2%80%99s-state-city-report-20112012
30 http://www.agma.gov.uk/
31 http://www.agma.gov.uk/cms_media/files/final_consultation_draft_gms_2013_2020.pdf
32 www.manchesterpartnership.org.uk/downloads/file/45/manchesters_community_strategy
33 www.ons.gov.uk/ons/dcp171778_323333.pdf

The statistics for householders with connectivity are not broken down by region[34]. For Great Britain in 2013, 21 million households (83%) had internet connection. Broadband internet connections using fibre optic or cable were used by 42% of households, up from 30% in 2012. This represents 83% of households, up from 80% in 2012 and 57% in 2006. There were 4 million households in Great Britain without internet access in 2013, compared with 10 million in 2006. This demonstrates that internet access by households has increased dramatically since ONS first began collecting these statistics in 1998.

A regional comparison from 2009 in England indicates that Greater Manchester had the lowest levels of PC (56%), internet (51%) and broadband (44%) take up across urban England, and adults in this area were also the least likely to have a landline at home. Lower internet take-up in Greater Manchester may be linked to lower landline penetration[35]. The view is also that Manchester has some of the most deprived areas in the UK. In the 2010 UK Indices of Deprivation places areas of Manchester in the top ten most deprived of the country.

In April 2013, the UK Government published details of a system of "Universal Credit"; a change to the benefits system in which "most people will apply online and manage their claim through an Internet access online account". This is likely to have a significant impact on the numbers of adults who use the Internet to interact with public authorities and services online. In 2013, the most popular reason for accessing a public authority or service website was to obtain information. Approximately, 31% of adults obtained information from public authorities or services such as local authorities, schools and universities, or government departments. For example, as reported earlier, it is likely that a proportion of those adults (43%) that used the Internet to seek health related information used public health websites such as NHS direct.

The UK is one of the most competitive communications markets in the world. Regulation of the telecommunications sector is based on UK implementation of the EU regulatory framework for telecommunications, first adopted in 2002. The UK's communication markets were opened with the privatisation of BT in 1984 and the introduction of competition. Further opening up of the market and the introduction of new services from the early 1990s brought many new companies into the market. Overall governance is provided by an independent regulator and competition authority for the UK communications industries (OFCOM). District level data on connectivity is commercially sensitive and is available for purchase on subscription via a company, Point Topic[36], *"The leading resource for worldwide broadband, IPTV and VoIP market intelligence"*. Point Topic provides a free database showing broadband availability in the UK (i.e. the ability to connect). Manchester has 100% coverage. Sam Knows[37] is free resource dealing availability of broadband.

34 http://www.ons.gov.uk/ons/dcp171778_322713.pdf
35 http://stakeholders.ofcom.org.uk/binaries/consultations/access/annexes/accessandinclusionsummary.pdf
36 http://point-topic.com/
37 www.samknows.com/broadband/about

For the monitoring of ICT and usage statistics, the city is largely reliant on publicly available sources as detailed above. MDDA assumed an "observatory" role and acts as a centre of knowledge and excellence with practical expertise and a wealth of knowledge about ICT businesses in the city, Living Labs, open data etc. This is carried out in conjunction with relevant departments in the city.
For example, MCC provides an intelligence hub[38] collecting information on all aspects of the city in one location. This includes external organisations such as Manchester Digital (MD), the trade associations for digitally related businesses in the city with a membership of 400. Greater Manchester already boasts a strong and diverse digital sector with 5 per cent of employment categorised as creative and digital with a forecast of around 40,000 new job opportunities by 2015.

Information is also pulled in from other sources such as services for local government provided by Knowledge Hub[39]. The Knowledge Hub run by the Local Government Association and provides an online knowledge sharing platform for councillors and officers to connect, communicate and share learning with peers across local government. The platform is arranged around subject groups which members can subscribe to, receive updates and contribute to. A range of digital and technology topics are covered including the use of social media for citizen engagement, communications, e-government, web 2.0, standards and guidelines. Members may also make direct contact with each other.

Manchester's Digital Strategy

In line with the UK government, MCC is moving towards a policy of 'digital by default' in the provision of a range of public services. This is where the Internet becomes the preferred method for the delivery of services. The statistics make it possible to monitor the number of people who are not online, and who are therefore unable to access public services that are delivered online. Statistics are used to help inform the wider debate about digital and social exclusion.
In March 2012 Manchester adopted a digital strategy for the city[40]. The 10 point plan aims to drive the Council's digital priorities and move the city forward rapidly as an example of best practice on a national and international stage.

Key objective 1 - Access and connectivity

- Connected Citizens - to ensure 100 per cent fast broadband coverage and Wi-Fi in all public spaces
- Connected Businesses - to ensure businesses have access to fast broadband and support with advice or financial assistance to best exploit it
- Connected Manchester - deliver a more co-ordinated partnership between the public and private sector to promote digital Manchester to attract new business

38 http://www.manchester.gov.uk/info/200088/statistics_and_census/5702/manchester_statistics_in_the_intelligence_hub
39 knowledgehub@local.gov.uk
40 http://www.manchester.gov.uk/news/article/6237/manchester_unveils_ambitious_plans_for_a_digital_city

Key objective 2 - Engagement

- Digital Skills - to ensure digital excellence at all ages through quality digital education at all levels to support people in gaining the skills to get future jobs and promote the benefit of 'going digital'
- Social City - create a digitally embracing City Council by fully utilising digital opportunities; including social media, advanced website and further exploit mobile technologies with content, advertising and apps
- Digital Reform - encourage and enable more people to become digitally savvy and grow to be self-service customers - increasing their digital potential and helping to deliver efficiencies within the Council

Key objective 3 - Industry

- Economic Growth - stimulate the creative and digital sector by encouraging investment and increase skill development from an early age to maximise the potential of our home-grown talent

Key objective 4 - Place

- Digital Place - the essential link between technology, residents and the city - from advertising and transport information to route finding - the city's physical infrastructure must be inextricably linked to digital technologies

Key objective 5 - Leadership

- Digital Investment / Resources - to exploit investment opportunities, both public and private to accelerate our digital ambition
- Digital Leadership - to achieve a truly digital city by co-ordinating all city strategies from transport and health to education and public services and develop a joined up digital Manchester

The strategy addresses the fact that residents without technology skills are inhibited in their job opportunities - currently only 74% of residents are broadband connected - and those businesses that do not use ITC to its full potential are inhibiting their chances of growth and future job creation. Through improved education the strategy looks to better prepare Manchester people for a digital future - especially those in areas that currently have poor connectivity - to maximise the potential of Manchester's skill base and take advantage of the opportunities that will arise in a world beating digital city.

Building on an already highly praised online presence, April will see the introduction of a new 'My Account' service as an addition to the popular 'My Area' - improving the online offer by offering more personalisation in a more user friendly space. The next step is to work with partners across the city to produce a delivery plan for the strategy in order to fulfil the ambitious plans of developing a truly digital city and become a world leader by 2020.

In the UK the industry is deregulated so it is private companies who run telecoms. Hence all monitoring is carried out by them. The access to data is via commercial company and is very expensive to obtain[41]. It is cost prohibitive for MCC to have a subscription to this i.e. it is £5,000 a year for a basic set of information.
UK ICT statistics are gathered nationally by the Office of the National Statistics www.statistics.gov.uk - so some of these statistics will include information relating to ICT - for example - household use of technology[42] - information is available only on a regional level not by city e.g. the northwest of UK.

In Manchester there is an intelligence hub[43] that collects info on all aspects of the city (not just ICT). At MDDA they do not collect statistics as such but they do have a wealth of knowledge about ICT businesses in the city, Living Labs, open data etc. They can be considered as a centre of knowledge and excellence with practical expertise.
MDDA collect (informally) information from a wide range of sources. They are more of a centre of excellence than monitoring.
There are proposals to develop Manchester-i - but this is not about ICT rather it would take data sources from a variety of places to enhance Manchester a smart city.

4.2.8 CZECH REPUBLIC, VYSOCINA REGION (EPMA)

According to the Czech Law no. 129/2000 (Law on Regions) the Czech Republic consists of thirteen regions (kraje) and one capital city (Prague) with regional status since 1st January 2000. The older administration system consisted of 7 regional units which served only as a state administration and had no self-government powers. Every regional unit consisted of smaller districts again serving only for administrative purposes. They together formed seventy-three districts. These however are still recognized and remain the seats of various branches of state administration, such as the judicial system. The new regional system is connected with a larger European process of top-bottom regionalisation which is supposed to bring more autonomy into regional hands. Regional self-government is thus provided by directly elected assemblies, which influence the regional development in the fields of education, health care, environment, and regional planning. In case of Vysocina Region there are some peculiarities which have to be recognized by local decision makers. The region itself unlike others was created from parts of former 4 administrative units (The other units were mainly divided into smaller regions).
Apart this, Vysocina Region, lays on two major historical parts of the Czech Republic (Bohemia and Moravia) almost equally 1:1 when considering land area. Although there is a small rivalry now and the cultural and language differences are marginal, these two parts had never been treated administratively as one entity before 2000. Vysocina Region is thus perceived as one of the most artificial regional entities nowadays.

41 http://point-topic.com/
42 http://www.ons.gov.uk/ons/rel/rdit2/internet-access---households-and-individuals/2012-part-2/stb-ia-2012part2.html
43 http://www.manchester.gov.uk/info/200088/statistics_and_census/5702/manchester_statistics_in_the_intelligence_hub

Artificiality of the region is proved by reality. Many of local facilities, services and infrastructure (hospitals, police, roads, etc) in border parts of the region were designed to fit in different geographical dimensions. Regional representatives have had to face centrifugal tendencies of all border parts of the region as several municipalities already joined neighbouring regions.

Figure 4.3 - Location of Vysocina Region in the Czech Republic

The Vysocina Region is situated in the centre of the Czech Republic (CR), neighbouring Jihočeský, Středočeský, Pardubický and Jihomoravský Regions. With the last of them Vysocina forms the NUTS2 area for the purpose of a regional development support (Regional Operational Programme). The total land area of the region is 6,795 km2. With population of 515,000 Vysocina Region has a low population density as 704 independent municipalities, mostly villages and small towns represent the average population per municipality of 732 inhabitants, which is the lowest of all regions of the CR. City of Jihlava, the regional capital, has population of only 50,000 inhabitants which together with Karlovarský Region, represent the smallest regional cities (the capital in almost all regions is twice as big).

Share of the region at GDP of the CR has been constantly dropping from 4.3% (2002) till 4.1% (2008). GDP per capita in the Vysocina Region is the 7th highest among all regions.
There are some 90,000 economic entities registered in the region. A majority of businesses comprises of micro, small and medium enterprises. Comparing with other regions Vysocina has higher share of employees in agriculture and forestry field.
Vysocina has a higher representation in productive sectors, primarily in agriculture and forestry. In the service sector, public administration and defence are significantly represented. On the other hand, financial services and retail (i.e. banking and insurance; leasing real estate, services primarily for companies, etc.) are underrepresented. Transportation and communication, retail, restaurant and accommodation businesses are greatly underrepresented in the Vysocina region. This is largely due to its rural character.

From its beginning the Vysocina Region has to face above mentioned obstacles that influence regional planning and which we can summarize as following:

1) Fragmented settlement structure
2) Weak regional city hub
3) Centrifugal tendencies of border areas
4) Bad traffic infrastructure
5) Geographical complexity of the terrain
6) Focus on primary and secondary parts of the economy

Regional Bodies

There are three main governance bodies: The Regional Assembly (like a Parliament), the Regional Council (like a Government) and Regional President.

The Regional Assembly is the supreme self-administrative body of the region, with a four year electoral term. It is comprised of 45 members.

The Regional Assembly has established the following committees:

- Finance Committee
- Control Committee
- Educational and Employment Committee
- Regional Development Committee

The Regional Council is a regional executive body active within its independent powers. In the Vysocina Region it is comprised of nine members of the Regional Assembly (President, Deputy Presidents, and other Members of the Regional Council). It is responsible for running the region in accordance with an approved budget, sets the number of regional authority staff, deals with proposals, comments, and issues raised on behalf of towns and villages, establishes committees of the Regional Council as initiative and advisory bodies of the Regional Council.

The Regional President represents the Region externally, and serves as the head of the Regional Council, answers to the Regional Assembly for the execution of his duties. The President signs legal regulations issued by the Region, appoints and recalls the Director of the Regional Authority with the approval of the Minister of the Interior, and is responsible for informing citizens about the activities of the Region.

System of decision making

Typically all matters have to be prepared by staff of the Regional Authority. Executives – heads of respective departments elaborate the material as a subject of discussion and negotiation during the Assembly and/or Council meeting. When the matter concerns some other body, institution or person, it is necessary to achieve the attitude to the question and standpoint to the proposal. Remarks on all issues concerning external entities are necessary and they are very important for consensus seeking and later engagement of all stakeholders into the solution.

(E.g. when a new regional policy concerning business environment is prepared the consultation with Chamber of Commerce and relevant enterprises in region is provided. When the Broadband project was prepared, telecommunication operators acting within the region, leading construction companies, land owners, municipalities in respective territory and others were involved into the consultation process).

Laws & regional policies

The field of IT law is getting bigger attention nowadays as ICT is very dynamically evolving field in contemporary world. In reaction to the changing environment related to the dissemination of ICTs and their significance for national economy as well as public administration in the CR was established the Ministry of Informatics of the Czech Republic in 2003. Three main commitments were: to build a fully-fledged e-Government allowing the citizens a fast and simple communication with the state authorities while generating state budget savings; to create suitable conditions for fair competition on the telecommunications market and promote the development of electronic commerce; to provide effective assistance in terms of availability and knowledge of communication technologies to as many people as possible. Elections in 2007 and changes in government led to budget savings which affected the Ministry of Informatics which was closed. Its agenda was taken over by Ministry of the Interior, Ministry of Regional Development and Ministry of Trade and Industry. Since then there is no coordination of ICT development and necessary legislation. As a result there is no responsible body, missing direction, overlapping agenda, missing expertise and consultancy.

Due to reasons mentioned above the Czech Republic follows the traditional way of dispersed IT/IS legislature setting new legislature when the problem occurs or when necessary.
The main regulation can be thus somewhat categorized into several main streams:

Intellectual property and licensing
Czech IPR laws copy more or less European and worldwide development.
Large discussions are open regarding ICT for contemporary legislation does not reflect newest technologies and is hopeless in coping with piracy and borderless dimension of the internet. This area mainly addresses software development protection, labour law aspects of software development, software licenses, domain lawsuits etc.

Information and its processing
This category of legislation can be described as a secondary. It consists of other important laws which influence information society and ICT development. Perhaps the most important in this category is the Law on free access to information, which built up citizens' interest in public administration. It also increased the push on public administration to offer online as much information as possible and facilitate thus the public data re-use.

Telecommunications

Despite market economy after 1989, the Parliament issued a new law on telecommunication in 2001 with its final version in 2005. Before that the old law from 1964, which was tailored for the environment characterised by monopoly, was in force. Telecommunications are nowadays regulated by new laws and the Czech Republic more or less fulfils transpositions of European regulation framework for telecommunications.

Regional level

Legislative powers of Czech regions are very limited as there are only two options of local regulations. Firstly "generally binding regulation" which can influence all acts within the self-government powers. Generally binding regulation however cannot force citizens to any kind of obligatory act unless directly required/ordered by national law.
Czech regions therefore use this instrument very rarely. Secondly "delegated legislature" which regulates only acts within delegated powers of state administration. Czech regions cannot by any mean issue a law of regional applicability as it is e.g. in German federal states. The only way how to influence legal environment is a "legislative initiative" which however influences national level only. Legislative initiative means that the Regional Assembly as a whole body can propose a law into Parliament.
After the law is submitted the region has no official way how to influence discussion on this law in both chambers of the Parliament. Such a proposal has limited chance to success unless discussed in advance with MPs and political parties. Legislative initiative is therefore again very sporadic.

Due to limited legislative and regulative powers the regions have to aim their focus at strategic documents and policies which ensure stable development and orientation. There are 2 main strategies resp. policies in the Vysocina Region which directly tackle ICT. While the policy serves as guidelines and can be seen as a political program containing overall direction of the region, the strategy provides very concrete steps and set of tasks that need to be done.

Policies	Timescale			Who		
	How often is the policy reviewed?	Date next policy to be launched	Date start of policy review process 2013	Policy owner	Policy process owner	Minister Responsible
ICT policy 2008-12	Every 4 years	2008		ICT dept	Head of dept.	Council member
Regional safety policy 2008-12	Every 4 years	2008	2013	Region Vysocina-president secretary dept	Head of dept.	President

Table 4.10 - Vysocina region ICT polices

Strategies	Timescale			Who		
	How often is the policy reviewed?	Date next policy to be launched	Date start of policy review process	Policy owner	Policy process owner	Minister Responsible
ICT strategy	biannually	2014	End 2013	ICT dept	Head of dept.	Council member
ICT safety strategy	biannually	2014	End 2013	ICT dept	Head of dept.	Council member

Table 4.10 - Vysocina region ICT strategies

As visible from the table above, policies and strategies are renewed periodically. Here the region takes into consideration regional needs, contemporary development, outputs of the international cooperation and funding calls and opportunities. Following diagram shows process of embedding recommendations in regional development policies in the Vysocina region. The process covers mainly internal work flow within the region. Each policy recommendation has to pass through respective department of the region. Then it goes through top executive and legislative bodies (Council and Assembly). After the recommendation is approved in the Assembly it goes back to respective regional department which elaborates final version and sends official request to the fund administration. Department is always responsible for further communication and policy development.

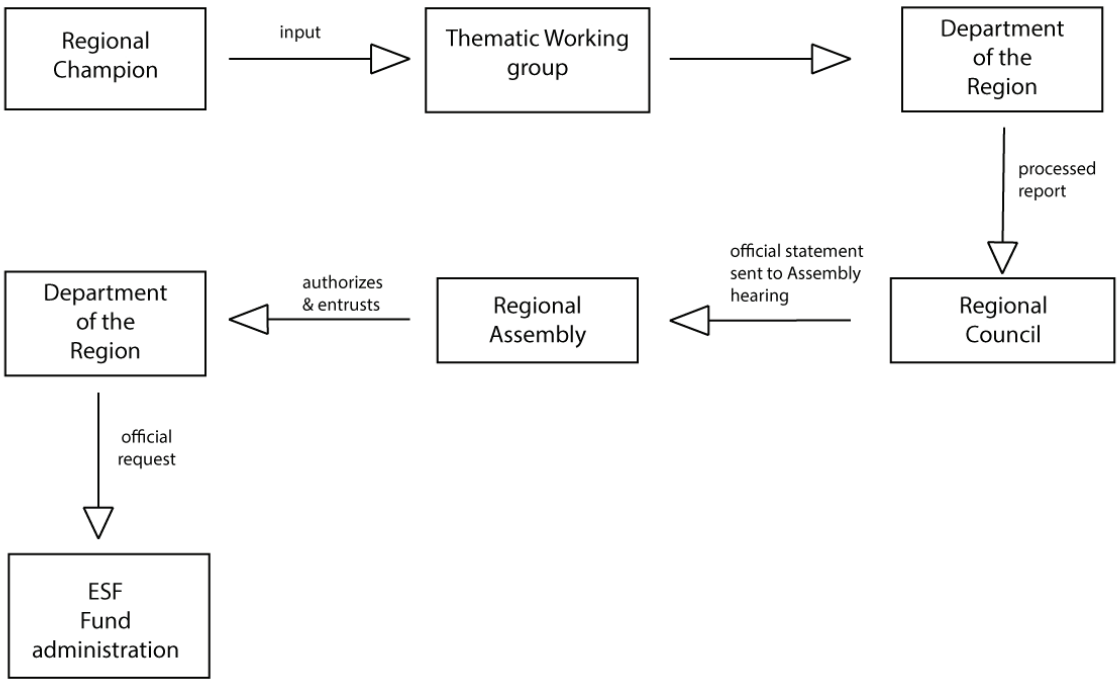


Figure 4.4 - Diagram of process of embedding recommendations in regional development policies

Data warehouse and Business Intelligence

Almost immediately after its founding (2001) the Vysocina Region recognized the need to build internal information system which will be able to provide more services than simple public administration agenda maintenance and data storage. During first four years (first election term), the regional staff and local politicians realized crucial problems they must address in order to succeed.

Financial responsibility

The region took over huge agenda of formerly government responsibilities. It comprises healthcare and emergency service, traffic infrastructure, public transportation, education, environment etc. Financial incomes consisted of 15% tax and non-tax incomes and 85% of state grants (later reinforced by European funds). Seemingly the national government minimized direct incomes to regional budget from tax revenues in order to make regional government weak and at the same time responsible. The grant system resulted in necessity to prepare perfect applications based on accurate data, quality management and up-to-date information.

Huge investments

After joining EU, the regions had the opportunity to plan massive investments mainly into infrastructure. This required efficient knowledge of own territory which would ensure sustainability and coherency of the investments.

Data production increase

The global volume of data is growing at a 40% compound annual rate. The big data problem affects regional decision making process in the same way as it does in other areas of human activity. The increase of ICT penetration and eGovernment administration caused that the regions had to administer vast amount of data which can and must be interlinked if the regions wanted to achieve efficiency.

In 2005 finally the regional government acknowledged the idea of creating regional Datawarehouse (DWH) which would allow the use of business intelligence tools (BI). Logically the role of coordinator was vested in hands of regional IT department. In 2007 the Czech government released a strategy for the period 2007-1015 under the name *"Effective public administration and public friendly services"* also known as *"Smart Administration Strategy (SAS)"*. SAS has for the task the preparation of the conditions for the good functioning of public administration, so that at the end of the programming period 2007 - 2015 was more effective and its perception from the part of the citizens was substantially more positive. Grounds set by the SAS influenced several Czech funding programmes in the respective period.
In the 2007-2013 period, the Czech Republic used 26 operational programmes. One of them named Integrated Operational Programme (IOP) offered following proposal themes where the second listed provided the opportunity to finance expensive projects of DWH and BI solutions.

The majority of regions sooner or later used this opportunity and submit their proposals using wider term *"Technological centre"*:

- modernisation of public administration;
- implementation of ICT in local public administration;
- improving the quality and accessibility of public services;
- national support for tourism;
- national support for territorial development;
- technical support.

Since IT Department had already built its first version of DWH after 2005, the Vysocina Region was among first regions which wrote proposal for DWH upgrade to be financed by the above mentioned call. Although the essential parts of the regional DWH and technological centre were successfully completed in 2012 the process itself has yet to finish. The task for 2013 is to connect all departments and organisation within the region with the new DWH services and structure. Absolutely crucial is the education of the staff. Using words of Dana Buřičová, the head of DAMS "*We built the infrastructure. Now comes another tricky part of the job. We have to educate all users of services the DWH provides. We can manage our own staff but crucial will be proper approach to external users such as journalists, businesses and citizens. There is a huge risk of data misinterpretation and legibility which can lead to false judgments and we have to make sure our message is delivered accurately*".
The IT Department of the Vysocina Region holds the leading position among Czech regions and was pioneering many fields of IT infrastructure and development including DWH creation.

Nevertheless DWH in the Vysocina Region is not the only one built on the regional level. Quite interesting is therefore small comparison between regions because every region used different approach. Given by different regional strategies and priorities the design and agenda operated by the local DWH differs. Certain hints of proposed architectures can be found in feasibility studies, which are compulsory parts of programme proposals, unfortunately other regions haven't proceeded in implementation of DWH far enough that we could carry out a serious study based on tried and true facts. In order to illustrate disparity between regions, the table below shows estimated DWH construction costs of several Czech regions.
The regions are listed in descending ordered by its population. The table indicates two important facts. Firstly, the level of DWH deployment differs enormously region by region. Secondly, each region recognizes different importance of DWH and BI solutions.

Region	DWH costs	Population
Středočeský	1.4 mil EUR	1.2 mil
Moravskoslezský	1 mil EUR	1.2 mil
Olomoucký	6.40 mil EUR	0.6 mil
Královehradecký	1 mil EUR	0.5 mil
Zlínský kraj	2.1 mil EUR	0.5 mil
Vysočina	1 mil EUR	0.5 mil

Table 4.12 - Business Intelligence costs per population

After detailed study of public tenders we can assume that the diversity of approaches is harmless in this case. Certain level of coordination and standardization is secured by regular meetings of regional IT departments. Multilevel character and robustness of such complex architecture ensures that all solutions seek for maximal interoperability, readability and integrity of formats and standards. Different architecture properties, suppliers and software solution provide possible space for mutual knowledge exchange, improvements and bug tracking.

DWH infrastructure

The DWH is mainly based on Microsoft solutions:

- SQL Server EE
- SharePoint EE
- Office Std.
- Reporting Services

Apart structured data processing the DWH was equipped with technologies enabling indexation of non-structured data such as documents, exchange public folders, SharePoint websites etc..

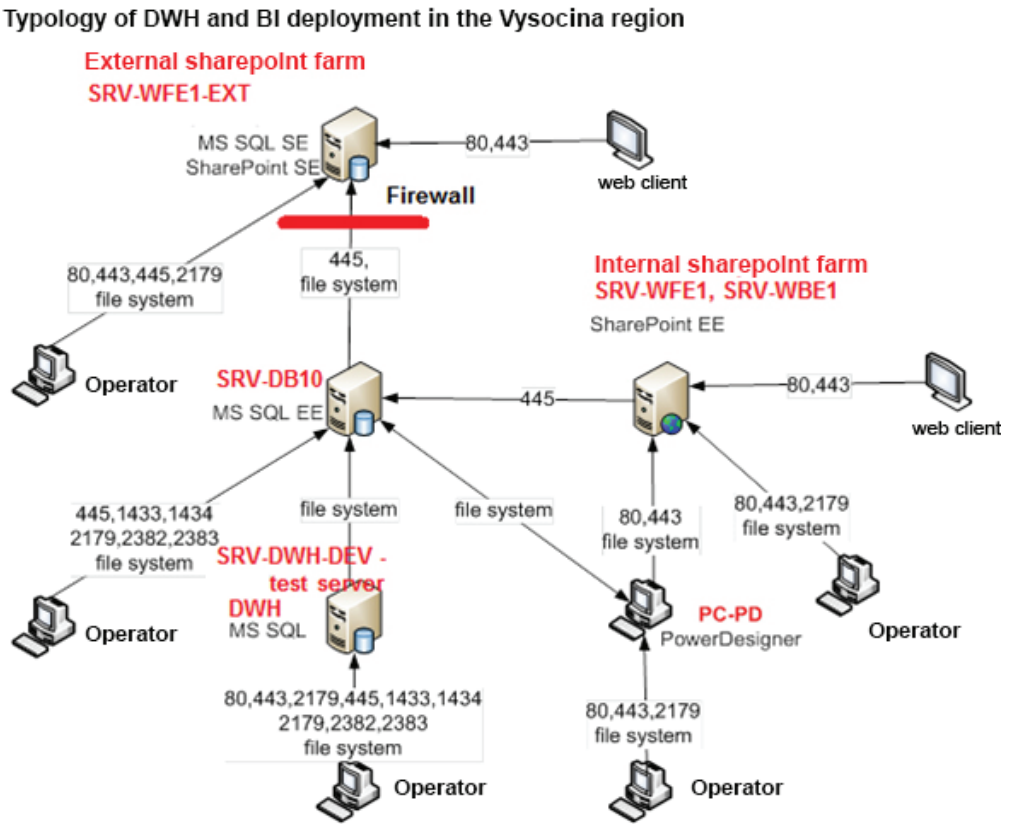


Figure 4.5 - Typology of DWH and BI deployment in the Vysocina region

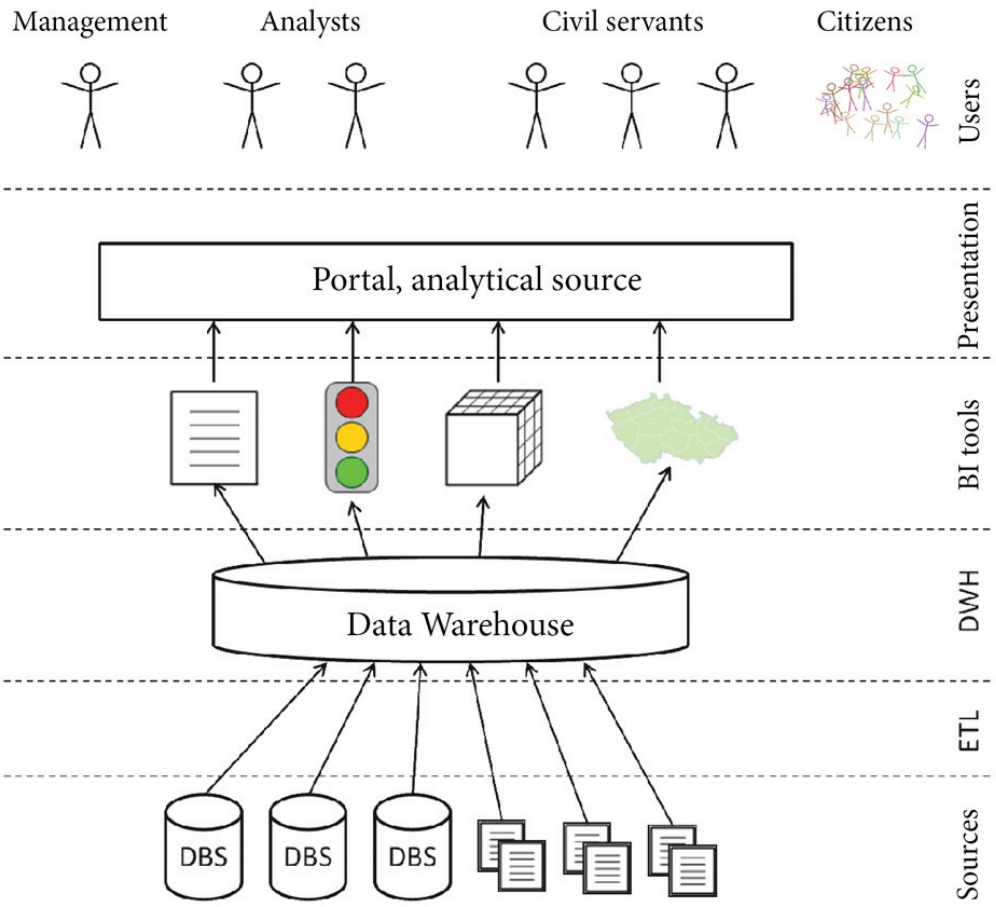


Figure 4.6 - Sources and users of BI services

Agenda

Highlights of improvements of the DWH after its update & enlargement in 2012 are:

- improved monitoring of regional accounting (internal departments, contributory organisations, etc.);
- improved monitoring of investments and funding;
- standardization and automation of data sets processing from different areas (no more time-consuming data cleaning).

The functions of the DWH platform are:

- accounting and regional budget (incomes and expenses, assets and payables, bank);
- property (internal regional buildings, property outside HQ);
- economics of the municipalities;
- cash flow;
- project financials;
- healthcare import from unified ERP (Enterprise Resource planning) of all medical facilities:
    - management - turnovers cost and revenue accounts to the analytical account;
    - financial plans, investment and repairs, funds utilization;
    - assets and payables, due dates;
    - the costs of hospital pharmacies (public and institutional care);
    - actions of health care system (DRG, medical material and medicine).
- education – all statistics from Institute for information and education (www.uiv.cz);
- regional property investments and repairs;
- grants (connection to system eDotace and Central Register of Grants (CEDR);
- cadastre of real estate;
- internal operation of the regional (attendance of public servants - efficiency);
- project management;
- public procurement;
- security (Police dept.: Criminality, traffic accidents; Fire dept.: fire squads, early warning system);
- regional statistics.

The process of plugging in complex systems, which are already running, is often very difficult. Such services connection requires: agreement on use of services (if applicable), detailed study of peripheral services/databases, proper understanding of data sets, ensured duplex communication (security & technical constrains, periodicity demands), database cleansing (if necessary), data Interoperability, technical implementation of new data sets in the kernel of DWH, education of the staff, debugging period.

The following story about utilization of regional statistics illustrates complexity of initial phase of this process. The Vysocina Region now uses data sets from the Czech Statistical Office.

Analytical department

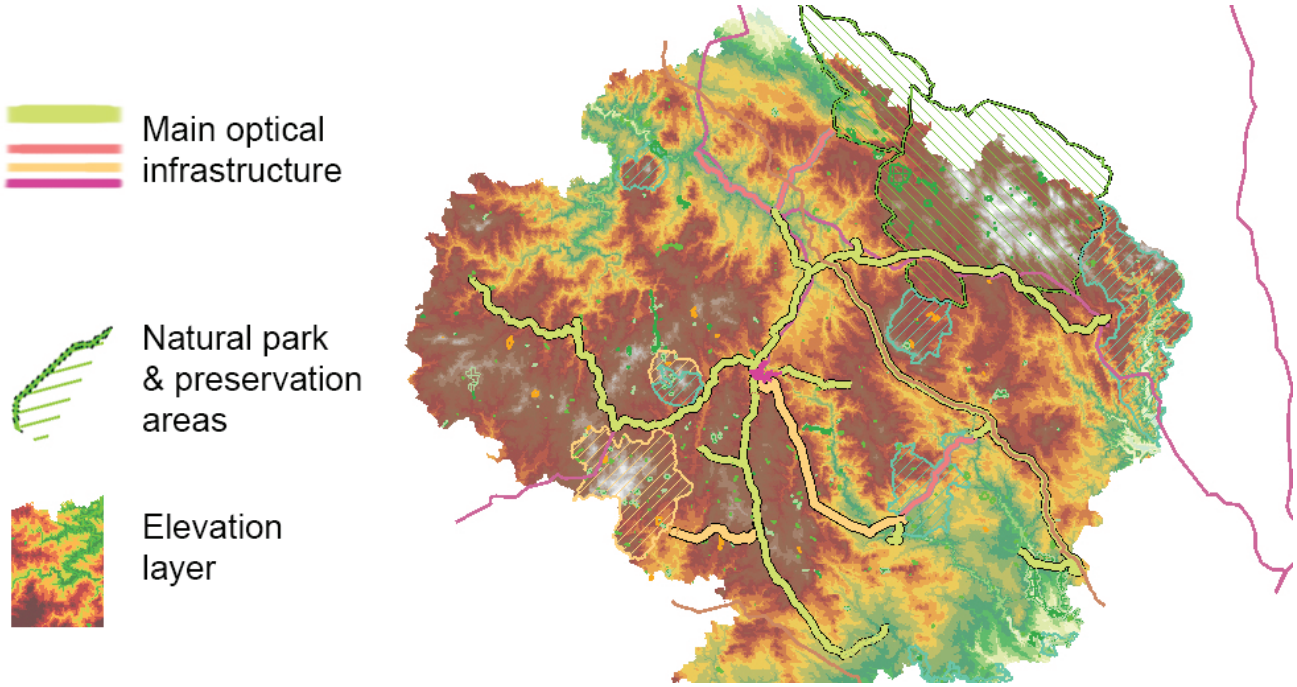
Although not fully compliant with the idea of ICT Observatory the most similar body in the Vysocina Region is the Department of Analyses and Management Support (DAMS). Unlike ICT Observatory the DAMS is not focused on ICT investment planning but on providing general services to all departments of the region and on-demand complex analysis elaboration. Together with the Department of Informatics the DAMS was responsible for technical implementation and maintenance of the Technological centre and Data Warehouse. The department has been running since 2004 and gradually gathering more responsibilities and agenda. Contemporary DAMS is operated by 6 employees, mostly technicians, statisticians and quality management experts.

Every regional department can assign as many employees and staff days dedicated to analysis and DWH use as it deems appropriate.

Apart of providing in-house services the DAMS orientates on external users, mostly citizens, regional companies and investors. The amount of publicly available data is considerably lower compared to internal resources due to privacy constrains but everyone is welcome to ask and consult additional queries that might be of interest.

Comparative advantage of DAMS stands in capability to gather.

Background



Current status

The Analytics and IT departments of Vysocina RA addresses:

- management of regional Data Warehouses and Business Intelligence platforms;
- preparation of decision support data and reports for management of the region;
- coordination of projects of analytical instruments, in particular its consistency witch regional data warehouse;
- proposes major general procedures leading to spending cuts and revenue raising of regional budget;
- monitoring of efficiency of RA internal processes, process modelling and optimization;
- system activities in deciding on the purchase of supplies and services for the RA and its established contributory organisations;
- conceptual Planning: management, coordination, and ICT support for development projects in the region; coordination of development activities with state and EU administration bodies;
- computer Network Administration: building and administration, web site server administration;
- database and Application Administration: organisation of an IT training scheme for employees of the Regional Authority; database systems administration;
- geographical Information Systems Administration: GIS administration and creation; landscape planning.

Prospects & Challenges[44]

Both DWH and BI are tools well known in the world of business (especially big companies). In hands of public administration and self-government these tools face several specifics compared to business world:

1) business is competitive whereas government must be cooperative
2) business tries to be confidential whereas government should be open
3) business is sales-oriented while government operates a huge agenda

High costs

- many different systems (police, health, education, accounting, statistics)
- elimination through cooperation
    - re-use friendly
    - misinterpretation
- proper data explanation

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44 (SUCHÁNKOVÁ M. Main problems in labour maket in district of Vysočina (Bachelor thesis). Masaryk university. Faculty of economics and administration. Brno: 2010. ECTA. Regulatory scorecard 2009. ECTA. Brussels: 2009. http://www.ectaportal.com/en/upload/Scorecards/Regulatory_Scorecard_2009/ECTA%20Regulatory%20Scorecard%20Report%202009.pdf
http://pef.czu.cz/~cmejrek/dokumenty/ver_spr/financovani_kraju.pdf. Ministerstvo vnitra ČR. Efektivní veřejná správa a přátelské veřejné služby : Strategie realizace Smart Administration v období 2007 - 2015 [online]. 2008 URL: <http://www.mvcr.cz/soubor/modernizace-dokumenty-strategie-pdf.aspx> SEMANOVÁ M. Importance of Smart Administration Strategy for the Effective Management of Public Administration. Brno: 2009. URL:<http://is.muni.cz/th/99905/esf_m/DP_strategie_SA.pdf>)

- emphasis on visualisation
- metadata quality

4.2.9 GERMANY, MEDIEN-UND FILMGESELLSCHAFT (MFG)

ICT observatory on a national level is Bitcom[45], the federal association for information technology, telecommunications and new media industry in Germany. In the regional level of Baden-Württemberg the ministries monitor the relevant data on case by case basis. Regionally Ministry of Rural Areas is the one responsible for broadband, business development falls under financial ministry, and the ICT use in other ways falls under Ministry of the Interior, so they each monitor their individual points of responsibility. MFG does some limited monitoring services, but now to lesser extent. MFG managed business network Baden-Württemberg connected (BWCon) does it more now at the moment. Both MFG and BWCon utilize external research institutions like Braunhofer Institute in Karlsruhe and ZEW (Zentrum for Europeische Wirtshaftsforschung) in Mannheim.

As it can be observed, on regional level the monitoring is both fragmented and not systematical and conducted on a case by case basis. However this is slowly changing. Memorandum of understanding on performing a new review and future policy paper of the state of ICT in Baden-Württemberg is accepted and the entity making this paper and research into a reality is BWcon. The Federal government initiated project for ICT 2020 in Baden-Württemberg has ran from Spring of 2013 with the coordination of BWcon, and experts have been discussing about the strategy of which areas of ICT should be pushed more. These areas are decidedly health, production, mobility and energy.

Health, because of the demographic change is important to Baden-Württemberg. We need to maintain the medical services and lot of the doctors are not willing to go to the countryside anymore. We might have the problem that industry leaves the countryside because it is losing services and is no longer attractive as a location to live in. The social system has permanent financial problem and ICT could be used to make it cheaper.
Production - BW most employees depend on productions. To maintain competitiveness in a globalized world IT has to go to the production area and make it more efficient. Production is the current heart of BW.
Mobility - The second largest industry sector is automotive, and automotive sector has two large problems. Firstly, less and less young people buy cars, and second is that more and more are willing to share the car. Car disappears because of sharing, so traditional automotive sector might get into trouble. ICT could help to transfer the product focused industry into a service focused industry, where we transfer mobility into an IT enabled service.
Energy - BW has homogeneously dense industry for energy and we depends on other regions for our energy. There is a lot of production and we more on energy and this turnaround needs to be managed and we are lacking and are behind schedule to reach this.

45 http://www.bitkom.org/en/Default.aspx

As a managing member of BWcon, MFG, and at the same time ONE project, will be closely involved in making this work of research and position paper into reality. This project will be ongoing until the end of 2014. In the end it will consist of expert workshops, meetings, research and culminates into a new ICT 2020 paper for the region. The final delivery date will fall in after ONE end date, but the initial research work, expert consulting and discussions conducted by BWcon will make it the only entity in Baden-Württemberg with the most accurate data available and a very important collaboration partner with ONE.

Considering ICT law and regulation, regionally there is no regulation. Mainly EU level regulations exist, but regionally there are now regulations or laws. Still it should be noted that ICT related regulations can be found on all levels of government, depending on what is meant by ICT – e.g. the Telemediengesetz (regulating internet providers) is a federal law with limited checks and balanced through the Bundesrat (i.e. the Länder level), for some areas there are EU regulations (e.g. data collection, recycling), other regulations concerning ICT are local (e.g. eGovernement-Richtlinien Baden-Württemberg, or the government decision to create a state CIO). There are also various institutions, e.g. the national IT-Planungsrat (ministry level collaborative body between regions), the Bundesnetzagentur or the Bundeamt für Sicherheit in der Informationstechnik (IT-security regulator). On the Baden-Württemberg level, there is an inter-ministerial working group, as some aspects of ICT regulation can be found in the ministry of the interior, and others are part of the consumer protection policies of the ministry for rural regions and consumer protection.
The problems, processes and political institutions involved vary greatly between issues, so the field is fragmented as are the observatory activities.

Concerning documentation, there is a signed Forward IT declaration that defines collaboration of key stakeholders in shaping the future of IT in Baden-Württemberg. There is also a project document from the ministry that defines the targets and goals of the project of creating a digital agenda of the region. The initial work has identified 16 points of interest that will be observed further. These include topics e.g. from mobility, e-inclusion and security. Additionally the ministry asked for project proposals concerning the digital agenda for 2020+ and has received 38 responsesf or IT development projects. Successful projects will be announced around March 2014. So the monitoring and development is done in cycles and by a concert of several programs and actors. The work will be observed in a cyclical nature, but the timeframe is not yet set for the repeating observation results and assessment of ICT development that follows.

HOW TO SET UP AN OBSERVATORY 5.0

5. HOW TO SET UP AN OBSERVATORY

After having collected the different experiences of the project partners on observatory and monitoring activities, it is important to give a more systematic structure to these elements, to try and detail the constituting elements of an ICT Observatory (ranging from the analysed objects and phenomena to the processes validating the research).
Hence, a "kit to set up or further exploit an Observatory" may consist of:

- compass (to provide a clear strategy);
- sensor&ruler (to monitor trends and indicators);
- engine (to process data and make forecasts);
- blackboard (to display results).

These elements are not listed in logical order: at times the different steps and activities are intertwined and mutually influence one another.

5.1 COMPASS

As mentioned previously, the elaboration of a strategy depends on many factors: regulations, policies, social and economic variables, infrastructures, etc. The Europe 2020 strategy is particularly helpful with this regard, as it supports the different territories in addressing their policies towards target objectives, to be reached according to the specificities and orientation of the different areas. The territorial ICT strategy hence acts as foundation layer for the ICT observatory strategy, that can focus on specific areas of analysis, as a consequence of the choices made at a more general strategic level.
An element of attention in the development of an Observatory is its capacity to look at the world surrounding it. The knowledge of the EU situation and regulations are an essential pre-requisite to carry out a successful EU "fund raising", as well as for the correct monitoring of their uptake. Moreover, EU initiatives may also provide food for thought on new activities or indications to carry out those currently under way. Similar considerations may be made for the national and regional scene as well.

As a second general assumption, it must be said that the observatory activity cannot disregard the decisional level, and on the contrary, the tighter the connection established between the two, the more useful and fruitful activities it will be able to carry out. One of the key factors that may contribute to the successful development of an ICT observatory is its ability to become an authoritative, and impartial, reference point for all the stakeholders, so as to collect their objectives and needs. The more the observatory can turn into a sort of hub in which different actors, from the political and administrative sectors, but also the business and research areas are able to make their voices heard, the more likely it is for the activity not to be sterile and for its own

sake, but rather that it turns into an added value for the whole community. Meetings between representatives of start-up companies and representatives of different realities operating in the ICT sector may result in new working ideas, that would enrich and complete the design of the activities.

5.2 SENSOR & RULER

An ICT observatory, both in its more traditional form and in its various specific forms often aimed at directly stimulating innovation (innovation incubator), requires information. These information derive partially, as was mentioned before, by the context that led to the development of the observatory, by its mission, and hence are an intrinsic part of "culture" of the organization and of the people that work in it. The rest of the information is necessarily structured, under the form or quality or quantity data.

This second group, in turn, depends from the nature and the objectives of the observatory. An observatory that also acts as incubator needs information, but it will also produce information, as a result of the data used for its activities, as well as the results of its activities. It therefore acts as 'sensor' or 'meter' of a specific phenomenon. Instead, an observatory with a more traditional approach focuses more on using as input the primary data that are collected and on producing indicators and analyses as output, concentrating its activities on the analysis phase.
Hence, how is the reality to be measured? What phenomena are to be monitored?
Using which tools?
Taking for granted that regardless of the level at which ICT analysis are carried out, be it international, European, national or regional, the categorizations of the scope of analysis can still be simplified in the following topics: Network diffusion on the territory, ICT and citizens, ICT and enterprises, ICT and Public Administration, ICT and education, ICT and health.

But the measurement specific objectives vary according to which aspects are taken into consideration: depending on the needs, on the reference background variables and on different endogenous and exogenous factors, it may be necessary to monitor and analyse, for example, the number of devices owned by citizens or the activities carried out on the net, or even the degree of digital literacy of the population or part thereof.
It is therefore suggested, in the definition of the topics to be considered and analysed, to focus the attention on those that, at EU, national or regional level, are considered as strategic to measure a phenomenon and/or its evolutions, and subsequently to enrich the selection with elements that are key for the specificity of the territory, its political situation, etc..

To also provide the general framework in which ICT monitoring is carried out, in the different European regional contexts, here is both as a reference and as an example the set of information required for the development of the Digital Agenda Scoreboard, considered as details of the 11 summary indicators (see annex A). The European Commission services selected around 100 indicators, divided into thematic groups, which illustrate some key dimensions of the European Information Society (Telecom sector, Broadband, Mobile, Internet usage, Internet services, eGovernment, eCommerce, eBusiness, ICT Skills, Research and Development). These indicators[46] allow a comparison of progress across European countries as well as over time.

Each summary indicator is declined, in a set of basic indicators that represent the phenomenon in its different dimensions, and which take into account the different actors that may relate to the topic which is being analysed.
The table provides methodological information about the source, the scope and the definition of each indicator.
A good starting point for a regional observatory is choosing, among the European indicators (which are mainly available at national level), which may be of particular interest for the regional reality, and analyse and measure more in depth those for the areas of interest.
Which tools are to be used to extract/collect/find such information?
The possible sources for the analysis activities are manifold and quite diversified.
The Digital Agenda for Europe and Eurostat provide many information, often also at regional level.
National statistical institutes as well carry out many surveys on ICT diffusion and adoption, and Professional Associations and Public and Private Research Institutes also provide data.
The regional/national data bases generated by the managers of public information systems may prove quite useful as well, and thanks to the Open Data policies they are increasingly opened up.
If available, the dataset of service operators or decision makers are quite useful as well.
The metadata connected to all these data can also provide useful information to understand the origin and the way in which the data have been collected, their time span and hence if they can be compared with other datasets, thus improving the reliability of the analysis made on the data. The Observatory may produce by itself, as already pointed out, the information it requires, through quality and quantity methodologies. The most traditional quantitative methodology is the one according to which data are collected through surveys (either by phone or on the web), if statistically representative. Crowdsourcing is a more recent data collection methodology through the web: information are collected directly with a bottom-up approach, from the users themselves.

46 http://digital-agenda-data.eu/datasets/digital_agenda_scoreboard_key_indicators/indicators

The Province of Asti presents the crowdsourcing experience of the MIDA project

The MIDA project (www.provincia.asti.it/crowdsourcing), stemmed from the intention of the Province of Asti to experiment with crowdsourcing techniques to be used in public interventions, as for example for the collection of information of diffusion of ICTs (broadband coverage of the territory and use by the citizens settled there), road and school maintenance, civil protection, etc.. The objective of the project was the involvement of the citizens of the Province in providing, quite rapidly, information to the local PA on broadband coverage in the area.

A so far unique initiative in the Italian panorama, the MIDA project (Monitoring ICT Divide Asti), was managed by the Asti Province with the endorsement of the Piedmont Region and the support of the Piedmont ICT Observatory. Normally crowdsourcing experiences are concluded over a few days, or even a few hours as for some application in the civil protection sector. In this specific instance, the service referring to the MIDA was kept active for a considerably longer period of time, over 6 weeks. The annual survey on the status of broadband of the regional ICT Observatory could also be carried out through an interesting on site application of crowdsourcing, also in consideration of the interest for the theme of access to the net in the territory of Asti demonstrated to the Province of Asti by many stakeholders.

During September 2012, Asti residents in the 15-74 age bracket were invited to participate to a system wide information gathering activity by: a) sending via mobile phone SMS, geo-referenced information about the quality of home/places broadband access; b) answering a web questionnaire investigating the availability of broadband services and Internet usages. As far as phase 1 was concerned (collection of information on the status of the coverage), the significant experience of the Information System service of the Province in using text messages made it possible to use this channel for basic information regarding the localisation of the point of observation and the status of the connection. It must be pointed out that this collection phase offered an immediate return to the participants, that saw the display on a map produced with Google Map, in real time, of the points from which they had sent their information. The points displayed on the map had different colours according to the download speed detected through a measuring tool made available on the site of TOP-IX consortium.

For phase 2 (more in depth analysis of ICT devices and use by the citizens) the participants, once they received the credentials transmitted via text message, were invited to fill the on line questionnaire that, structured on the basis of the indications of the ICT Observatory (to ensure continuity with the previous surveys), was developed by resources working within the Information System service of the Province and was hosted on the Province servers. To try and ensure the maximum citizen participation to the project, the Province of Asti, with the support of the Piedmont Region and some private actors of the territory, adopted a twofold approach: providing incentives, concretely offering many prices to be assigned

through a lottery among the participants, and promoting the initiative through all its communication channels (press communications, an article on the project published on a local biweekly publication, information on local radios, posters in all schools and distribution of leaflets at high schools in Asti, personal email messages to all mayors of the Province, etc.).
Despite all these efforts to support the project, the reaction of the citizens of the Province to the initiative was somewhat lukewarm. Overall, 350 detected points have been transmitted by the citizens, quite a low figure as against the initial estimate of 1,000 replies that had been elaborated on the basis of the many and pressing requests to extend the broadband coverage and incentives over the territory.

From a first analysis of the interview with some of the participants (in particular students) the causes of the lack of success of the initiative are mainly due to the following factors:

- a generalised climate of scepticism:
    - poor participatory culture for initiatives launched by public institutions in territory. There is a form of natural mistrust in communicating information to the PA. This mistrust was further compounded by the fact that the promoting institution was the Province, an institution that is presently undergoing a phase of uncertainty with regard to its institutional future and whose specific functions are not always easy to identify;
    - the prizes may have contrasted this mistrust, but also sweepstakes are looked upon with scepticism.
- technological obstacles:
    - the text message method was objectively complex, even though the information required could have easily been identified by the participants (the geographic position of their house could have easily been identified through Google Maps or with any GPS, the upload and download speed could have been measured on the TOP-IX website);
    - the on line questionnaire was somewhat long as against the analogous surveys carried out on the web.
- lack of institutional collaboration:
    - the school world did not provide enough support. With some 5,000 students in the territory, they may have become a driving factor for participation to the initiative. Students in general, and in particular those living in smaller centers, are complaining about lack of a broadband infrastructure. The fact that they did not participate confirms the mistrust towards PA initiative, that was not contrasted with posters, radio communications and leaflets specifically aimed at them. For future initiatives, the awareness raising campaign should be integrated with conferences and the use of social networks.

Although the participation to the project was below the expectation, it gave the Piedmont ICT Observatory the opportunity to probe into the benefits accrued to individuals in using the Internet in their daily practices. In particular, citizens were asked to choose, for a set of social practices, whether the utilization of the web had an impact on relaxing time or cost constraints, or on removing barriers to access a wider range of alternatives in carrying out a certain activity (variety of alternatives).

For more than 60% of the respondents, the most significant impact was represented by time savings, while the elimination of the other two constraints accounted for about a similar share (20%). In particular, the positive effects on cost savings were reported above all by adult population (between 40 and 50 years) and those about variety of alternatives were relatively more appreciated by people older than 60.
Qualitative methodologies may vary and be applicable to different contexts of analysis: focus group, interviews, social listening, etc.

The choice of the analysis methodology depends on what is being studied and on the scope of the analysis, as well as on the available timeframe. For example interviews are more useful for specialised and limited analyses, to identify and study in detail specific aspects over a short period of time. On the contrary, social listening methodologies (typically 'listening' to how a phenomenon is being talked about in web environments, such as social network, through IT tools) are more targeted to the analysis of one or more phenomena in a wider population sample, possibly also quite segmented, and this requires longer times, as well as different professional skills and a considerably larger amount of resources.

5.3 ENGINE

The phase of analysis and the shift from information to knowledge are an essential element of Observatory activities.
It is therefore useful to analyse more in depth what tools may be available to Observatories to create knowledge. Needless to say, the same piece of data may, in different hands and for different purposes, be interpreted in contrasting way and thus result in considerably diverging policies. Thus, the identity paper of an indicator may prove to be essential, as it provides a guarantee to the users, but also to the Observatory itself, when a piece of data or an indicator it produced is used by other parties, or used as primary piece of data to elaborate research in different sectors.
With a view to the increasingly important role of open data policies all over Europe, public administrations are encouraged to open up their data so that different actors may develop applications and services, and thus create the conditions for information available to citizens to easily be transformed into knowledge.
Observatories with "incubators" characteristics (living labs) also generate knowledge less traditionally, but still directly: they do not produce traditional reports or indicators, but rather train and raise the awareness of people on different ICT related topics (for example, during a hackathon, the number of developers that cooperate to produce an app is a strong output itself, as the direct experience constitutes knowledge, without intermediaries). PAs may benefit from this type of bottom up approach to integrate their policies with information collected and tested directly on the ground.

As far as more technical elements are concerned, moreover, having a data warehouse dedicated or available to the ICT Observatory will surely make it possible to access, from a single point, all the useful data for analysis activities, and the data would already be connected one to the other: this makes it possible to produce analysis information with context data quite rapidly, and to connect them. Some IT tools also offer the opportunity to make forecasting analyses and simulations, to verify how different outcomes of a specific phenomenon may have implications on the overall scenario.

Hereafter is an example of analysis method developed by the ICT Observatory of the Piedmont Region to elaborate an analysis of the territories in the framework of the Digital Agenda: it is but an attempt at demonstrating how a research model can be structured, to reach an objective, and how the (quantitative/qualitative) phenomena to be taken into consideration can be chosen and how they can be connected to determine the framework of an analysis.

Proposing a methodology

Observatories may indeed provide a contribution to the methodology framework that shall support the next regional programming period for structural funds. Undoubtedly, programming initiatives connected to EU funds at regional level is a complex activity from many different point of views:

- substantial, as it involves many different initiatives and actors to implement new development conditions for the whole social and economic system;
- relational, as the (thematic) objectives of the programming activity cross the regional sectors of competence of regional actions and therefore the communication flows and the collaborations between different sectors should be strengthened;
- of the capability of the regional community as a whole to exploit the advantages of the spill-over of policy initiatives.

Eventual monitoring of smart specialisation interventions defined in the framework of a regional programme should be carried out to enable a more high level over-view of their results: that it should make it possible to read, interpret and present the results of the programming activities from different points of view and with different levels of analysis. In Piedmont for example this approach can be summarised in four main perspectives to monitor the smart specialisation process:

A) monitoring of the programme in the light of RIS (Regional Innovation System) indicators with a view to Europe 2020;

B) monitoring of the actions implemented by the programme policies and their relations. Focus will be granted to the interventions and their contribution to support the sector strategic and political reference axes;

C) listening to collective perceptions with regard to the implemented projects. Particular attention shall be focused on individual and collective *"sentiment"*, that is how the policy intentions/actions are experienced in the different social, organisation and territorial contexts of the region is something that should not be neglected;

D) smart monitoring – it is increasingly important, while monitoring events that affect citizens, to know and anticipate the future results of the actions that are

implemented, or, at least, to explore their possible results.
This is even more important with reference to planning, as it is necessary to evaluate possible different repercussions of a single project on other projects and on the system as a whole.

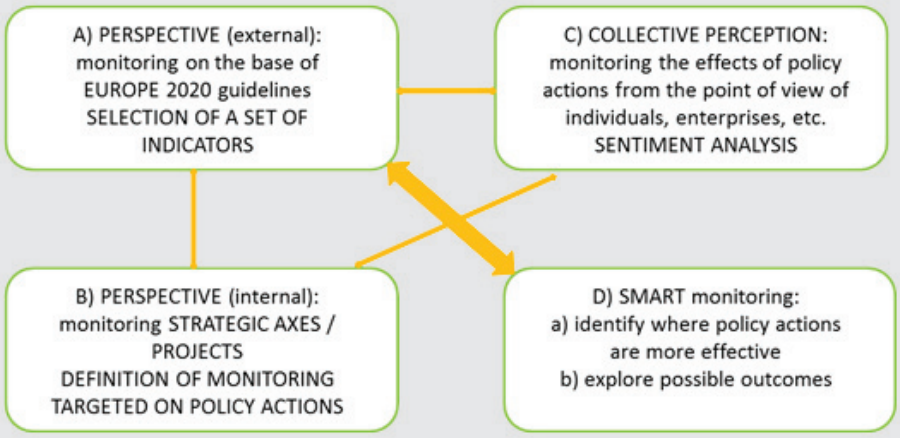

Figure 5.1 - Piedmont Region ICT Observatory 2013 approach

5.4 BLACKBOARD

The knowledge production phase, to be considered as such, needs to be understandable also for the public. An ICT Observatory, for its very nature, must try to use all the tools made available by the technology to make this phase more effective.
Once again, knowledge representation tools vary according to the audience they are aimed at: long reports, be they on paper or electronic, are more useful for and targeted to a specialized audience, mainly for academic and research activities.
Query and Reporting tools (reporting software is used to generate human-readable reports from various data sources) instead may target different audiences: if they are particularly detailed, they aim at a specific and highly specialized public, while if they are sufficiently easy to query, they can be used by a broader public who, for working, study or personal reasons may be interested in consulting the information and creating reports or tables.
The new potential of IT tools and graphics, together with the increasing importance of communication strategies, are opening the way to representation tools and activities to display data that can concretely transform data into information: presently visual design and data graphic representation tools shift the paradigm towards user experience, that is towards the final consumers of the information, to enable them to better understand the phenomena that are represented.

Example of visualisation: the OCECPR approach

As a result of its participation to ONE, OCECPR has implemented 4 projects:

1) The Broadband Testing Tool (2B2T) is expected to assist consumers and fixed broadband access providers to settle the argument regarding nominal vs actual access speed, via access speed measurements and the availability of measurement data at street level, as well as assist OCECPR in evaluating the extent of possible breaches of network neutrality through 'traffic measurement' practices of access providers. The flow of information between users and providers is expected to lead to self-regulation (regarding access offers) and mobility of users among providers, forcing the issue of network modernization and quality of service. The need for such tool was a result of the need that was discussed in a number of project ONE conferences for more transparency;

2) The Guided Service Selection Tool is expected to assist users to decide on a (bundle of) service(s) that fits their user profile, forcing the issue of consumer mobility and intensifying competition regarding bundles of services. At the same time, the data gathered will provide information to the OCECPR Observatory regarding market trends and disposable income thus developing new indicators that are similar to CSI Piemonte and were demonstrated during the twinning. The project was inspired from the need for transparency that was an ongoing theme during project ONE and the 2 twinning's that OCECPR participated in;

3) The NET2MAP tool that was developed by OCECPR is an interactive Web GIS application tool that depicts on an administrative map of Cyprus data from OCECPR ICT observatory as well as the presence of the various fixed and mobile networks of ISPs on a street level. The project was inspired by CSI Piemonte WI-PIE project that was discussed during the conferences and was demoed during the twinning;

4) The effects of broadband penetration to the economy will be indirectly measured through the study of the consumer surplus that OCECPR aims to finalize with the University of Cyprus. The study will make use of data from the other 3 projects this is a new indicator that is result of various discussions with CSI Piemonte.

PROPOSAL OF A COMMON REGIONAL (TERRITORIAL) SUMMARY INDICATOR

6.0

6. PROPOSAL OF A COMMON REGIONAL (TERRITORIAL) SUMMARY INDICATOR

6.1 PROPOSAL OF A COMMON REGIONAL (TERRITORIAL) SUMMARY INDICATOR

Towards a pan-European ICT Observatory: start-up

Knowledge of connectivity and ICT equipment of the territory is recognized as an essential prerequisite for the digital growth of the territories, as well as an enabling condition for the development of services. The growth of ICT demand, and consequently of the ICT offer, is presented in the Digital Agenda for Europe as a precondition for digital development and as a key element for the transformation of production services.
Knowledge on connectivity and equipment is moreover essential for the development of territorial policies. Indeed, knowing the positioning of the territory in those terms makes it possible to better target policies connected to the use of EU funds.

ONE, thanks to the experience gained by its partners in the development of methods and tools for the setting up of an ICT Observatory intends to propose, as supplementary output of its activity, some proposals to display in a common way – through a single and simple indicator – connectivity and ICT equipment in the territories, at sub-national level.

One of the observation emerging from the project is that it is increasingly necessary to find indicators which can – at regional level – offer an overview of the ICT demand: national statistics do not always provide sufficiently detailed indicators at regional level, and at the same time, indicators elaborated at regional level often differ between each other and are thus difficult to compare and contrast.

The present proposal therefore intends to provide a contribution to bridge this gap, creating some comprehensive indicators – that can easily be calculated and with readily available and easily comparable basic indicators. Moreover, so as to understand how the index was developed and the indicators that compose it, ONE wishes to make available an ‘identity paper’ of the indicators, so that the index deriving from this proposal may eventually be spread and publicized, in addition to being clearly understood, and so that it is possible to calculate it for other territorial realities.

The possibilities to develop the comprehensive indicator may vary according to the specific objectives that are targeted. Hereafter is a description of 3 possibilities, that can summarize the connectivity level of a territory, and whose complexity varies according to which and how many basic indicators are taken into consideration.

6.2 COMPREHENSIVE INDICATOR: INTERNET ACCESS

This indicator aims at providing an overview of the real access to internet of households, as access is the prerequisite for the development and use of services, as well as the development of different forms of digital citizenship, or promote e-inclusion, e-training or e-employment.
The following indicators can be considered as relevant to the analysis, taking into consideration the indicators used according to the literature on the topic to carry out a benchmark at EU level, with particular reference to the Digital Agenda Summary Index[47] and the Innovation Union Scoreboard[48].

This comprehensive indicator should consist of the following basic indicators:

- Households with access to the Internet at home
- Households with broadband access
- Individuals regularly using the Internet
- Individuals who ordered goods or services over the Internet for private use
- Individuals who have never used a computer

These basic indicators are available thanks to Eurostat statistics:

- Households with access to the Internet at home by NUTS 2 regions (isoc_r_iacc_h)
- Households with broadband access by NUTS 2 regions (isoc_r_broad_h)
- Individuals regularly using the Internet by NUTS 2 regions (isoc_r_iuse_i)
- Individuals who ordered goods or services over the Internet for private use (isoc_r_cux_i)
- Individuals who have never used a computer (isoc_r_blt12_i)

6.3 BROADBAND COVERAGE COMPREHENSIVE INDICATOR

It is also possible to focus the attention on mere technical aspects that make it possible to identify – providing an overview – the connectivity of a territory.
The availability of broadband, especially with a view to the Digital Agenda objective, set for 2020 the target of providing to all of the population a Fast Broadband connection (>30 MBPS).

47 http://www.osservatorioict.piemonte.it/it/images/phocadownload/RapportoICT2012.pdf
48 http://ec.europa.eu/enterprise/policies/innovation/policy/innovation-scoreboard/index_en.htm

The nominal capacity available is not sufficient to correctly portray the distribution of the available broadband coverage, as the coverage is not homogeneously distributed over the territory: it is therefore important to also have information on the actual broadband availability for the citizens. With this regard the ONE project has presented and shared some experiences of concrete visualization on the territory of the failed correspondence between the two figures: the Piedmont Region ICT Observatory with its application to visualise the decrease of broadband capacity as the distance from the reference telephone exchange increases; and OCECPR's 2B2T Broadband Speed Measurement application to evaluate any unjustified divergence between nominal versus actual access speed via access speed measurements and the availability of measurement data at street level.

These data are to be integrated with a subjective element, that is the indicator relating to the user perception, so that the elaboration of the comprehensive indicator also includes users satisfaction on the received service.

This indicator should therefore include the following elements:

- nominal available capacity;
- actual available capacity (to evaluate it some national level tools area available);
- service perception (internet users satisfied with the service).

6.4 INTERNET ACCESS BY CITIZENS LIVING IN REMOTE AREAS

Another proposal is the possible use for the development of this comprehensive indicator, the identification remote areas, on the basis of the definition of 'internal areas' proposed by the Department of Economic Development of the Italian Ministry of the Treasury.

This definition makes it possible to identify the areas that are in marginal position and with a less effective presence of services. Internal areas are identified on the basis of their distance from centres – the so called poles of attraction – that, in terms of their settlement structure, presence of offered services and demand of services, can be configured as local poles of attraction for daily life needs.

It is specifically in these areas that ICT diffusion makes it possible to bridge the divide that separates them from service centres, making it possible for the population to access via web services that would otherwise not be accessible. Moreover, these are the areas often targeted by development policies and EU funds.

To develop the indicator it is first of all necessary to identify the poles of aggregation, that are characterised by[49]:

- secondary education services: complete range of secondary high schools available;
- health services: presence of health structures that have first level Emergency Centres;
- railway transport services: presence of medium-small train stations.

The municipalities that are not classified as pole, and that are located too far from them to be able to comfortably access the services that a pole provides, are classified as 'internal areas'. The essential element in this categorization is the actual distance from a urban centre with high level of service offer.

Within this subset of municipalities, the analysis of a set of data and indicators will make it possible to know the broadband coverage, and hence to identify those areas that are not sufficiently covered, and hence have difficulty in accessing services both physically and digitally. The elements to be taken into consideration for the elaboration of this comprehensive indicator are:

- population per municipality;
- identification of what municipalities can be defined as internal areas;
- broadband coverage of the municipalities.

The visualisation of the indicator in terms of population density of the area also makes it possible to better understand the digital divide phenomenon and thus to compare territories.
The proposed indicators and final output are therefore:

- at regional level, broadband coverage per municipality in internal area;
- municipality population with less than sufficient broadband coverage in internal area.

49 At an initial stage poles of aggregation were defined according to a wider set of basic indicators, and more specifically: structure indicators (1. Inhabited areas: inhabited center, inhabited nucleus or scattered houses – as a proxy for the degree of urbanization; 2. Population rate over 65– as a proxy for the demographic context), service offer indicators (1. Presence and type of secondary schools –ranging anywhere in between 'no offer' and 'complete offer'; 2. Presence of bank services - # of bank counters per 1000 inhabitants; 3. Presence of financial services for citizens; 4. Presence of health and emergency structures – ranging from 'no structure' to 'more than one'; 5. Presence of health structures with at least 250 beds; 6. Presence of health structures with at least 120 beds; 7. Presence of health structure with 1st level emergencies; 8. Presence of at least a 'Silver' level railway station; 9. Presence of public and private museums), service demand indicators (students enrolled in high school as against 14-18 y. o. population), context indicators (quota of car accident per 1,000 circulating vehicles – as a proxy of the congestion level).
The study of the Italian Department of Economic Development however demonstrated that the classification resulting from the use of these indicators is the same as that resulting from the use of only 3 indicators that are identified as decisive (secondary education services: complete range of secondary high schools available; health services: presence of health structures that have first level Emergency Centres; railway transport services: presence of medium-small train stations). Therefore, to simplify the analysis, the project has decided to adopt the more reduced set of indicators.

CONCLUSIONS

7.0

7. CONCLUSIONS

As introduced in the support documents[50] for the implementation of the Digital Agenda for Europe in EU territories, regions may also reinforce their planning and implementing capacity through technical assistance, e.g. by setting up a dedicated ICT/broadband centre of competence
or implementing body that takes responsibility for streamlining procurement specifications (including technical standards), state aid notifications or the collection of monitoring data.

For the 2014-2020 Structural Funds programming period, an ex-ante conditionality applies which aims at fostering the development and implementation of national and regional digital growth measures and promoting the DAE goals by exploiting national and regional assets in line with the idea of smart specialisation.

The Strategic Policy Framework for Digital Growth should chart the obstacles and actions needed to overcome them in order to realize the social and economic potential of ICT, most notably the Internet-related technologies. The Strategic Policy Framework must be based on evidence and set objectives that make it possible to chart them against the DAE. It must contain measures that ensure digital growth to stimulate affordable, good quality and interoperable ICT-enabled private and public services and increase uptake by citizens, vulnerable groups, businesses and public administrations including cross border initiatives. The Strategic Policy Framework should set out the scope, timeframe, concrete and comprehensive objectives, allocation of resources, measures to achieve these and monitoring and evaluation instruments to assess progress of implementation.

The basis for such a Strategic Framework is an analysis of relevant socio-economic issues (such as composition of ICT industry, ageing, education, income, level of ICT training/skills, employment status, affordability of services, etc.) that characterize the territorial context.
It should consider both demand (e.g. Internet accessibility and digital skills as conditions for the demand for ICT solutions by households, businesses and public administrations; user-centered approaches to identify the needs of private and public users; etc.) and supply issues (e.g. ICT capabilities of local firms, infrastructure, equipment, services and applications), taking into account the dual role that many of these measures play. Such a strategic policy framework may contain specific priorities in specific ICT fields, and horizontal priorities supporting ICT–based innovation across all other sectors and activity areas.

50 http://s3platform.jrc.ec.europa.eu/digital-agenda

At the same time, the Policy Framework should examine potential measures and priorities that will be **coherent with relevant national and EU initiatives** foreseen in the context of the DAE, such as e-Infrastructures, broadband, cloud computing, IT security, Internet safety, open data, living labs, digital skills, digitisation of cultural heritage and products, digital aspects of active and healthy ageing, eHealth, eGovernment, smart cities, smart grids, intelligent transport systems, etc.).

Considering the increased importance of monitoring activities in the new EU 2014-2020 programming period, as well as the importance of all the information presented in the previous chapters, **it is now important to evaluate what ONE project may offer for the future**.

First of all, here are some of the **lessons learnt**: observatory activities are manifold, and all aspects are equally important. In general, the different activities depend on the degree of "maturity" in ICT of the Region in which they are carried out, and they are connected to the different regulations and competences of the reference territory. Secondly, it emerged that one of the essential aspects of an Observatory is its connection to the territorial stakeholders, from the political actors, to the business sector, to the research institutes, etc.. With this regard, the stronger the connection to the stakeholders, the more effective and fruitful will the monitoring and analysis activity be. Thirdly, an Observatory must have tools to carry out its functions, be they data, business intelligence tools, or human resources. Only through a successful combination of these elements will true and concrete results be produce, otherwise knowledge will be left in some drawers.

To summarise in a single slogan the objectives of an Observatory, as they have already been examined in detail, in consideration of the present social and economic, it can be said that the ultimate objective of an Observatory is contributing to the growth of its territory. However, it is by now necessary to go beyond regional borders, as we are part of the EU ecosystem that is rich in initiatives and programmes fostering regional growth.

ONE project, with the initiatives carried out in its 30 months of activity, laid the foundations to go beyond these regional borders: it shared its good practices to try and suggest a shared working method and it made an effort to propose a first small set of shared indicators to measure ICT in the different regions. In doing so, it learned that the EU regional landscape is rich in projects and initiatives that, each in its own way, deal with ICT, and that the connection and collaboration with these projects is an element of paramount importance. The collaboration with other INTERREG IVC and South East Europe programme projects highlighted **the need to have a – structured – European regional observatory network** to carry our joint, shared and complete monitoring activities on ICT diffusion over the territories, sharing resources and costs. Thus it would also be possible to truly compare monitoring results, developing common standards and indicators.

The ONE partnership believes that now times are ready to offer the results of ONE to all those that may be interested in them, and **to promote the setting up of some form of pan-European ICT Observatory**, to support regional policies, but which may also be a link with EU institution, to unify the flow of information from the regional to the EU level. This would make ICT Observatory activities even more concrete, maximising efforts and results, supporting the monitoring of the EU Cohesion Policy on ICT topics. Indeed, the Policy provides for a promotion strategy for a general and harmonised development of Member States and regions, that is implemented by the national and regional Public Administration in collaboration with the European Commission[51]. Programme monitoring is explicitly stated as one of the fundamental phase of its implementation, and such monitoring is to be carried out jointly by the EC and the interested territories.

The ONE partnership wishes to work in this direction with all those interested, so that the activities carried out in the framework of the ONE project are a **stepping stone for an even wider collaboration** project, for all the EU regions.

51 http://ec.europa.eu/regional_policy/how/index_it.cfm

ANNEX A

DIGITAL AGENDA SCOREBOARD KEY INDICATORS

8.0

8. ANNEX A - DIGITAL AGENDA SCOREBOARD KEY INDICATORS[52]

Indicator short label	Indicator long label	Definition and scope	Source
Broadband (supply and take-up)			
Total revenues of the electronic communications sector	Total revenues of the electronic communications sector	**Definition**: Total includes wholesale and retail revenues from electronic communications perceived in the reference year by all telecom operators (VAT excluded)	Communications Committee survey
Total investment in networks by the electronic communications sector	Total investment in networks by the electronic communications sector	**Definition:** Total investment includes both tangible and intangible investment in telecommunication networks (without license fees) by all telecom operators	Communications Committee survey
Fixed broadband coverage	Fixed broadband coverage (as a % of total/ rural population)	**Definition:** Coverage is a supply indicator, defined as the percentage of population living in areas served by fixed broadband: either DSL or cable modem networks. **Notes:** Indicator collected until 2010. Then replaced with two different coverage indicators, for standard broadband and NGA respectively.	IDATE - Broadband coverage studies (2005-2010)
Total standard fixed broadband coverage	Total standard fixed broadband coverage (as a % of households)	**Definition:** Coverage is a supply indicator defined as the percentage of Households living in areas served by xDSL, cable (basic and NGA), FTTP or WiMax networks	Point Topic Study on broadband coverage

52 http://digital-agenda-data.eu/datasets/digital_agenda_scoreboard_key_indicators/indicators

Total NGA broadband coverage	Total NGA broadband coverage (as a % of households)	**Definition:** Coverage is a supply indicator defined as the percentage of Households living in areas served by NGA. Next Generation Access includes the following technologies: FTTH, FTTB, Cable Docsis 3.0, VDSL and other superfast broadband (at least 30 Mbps download)	Point Topic Study on broadband coverage
Number of Fixed broadband subscriptions	Total number of fixed broadband subscriptions	**Definition:** Number of fixed broadband subscriptions (lines).	Communications Committee survey
New entrant's share in fixed broadband subscriptions	New entrant's share in fixed broadband subscriptions	**Definition:** Market share based on fixed broadband subscriptions (lines). New entrants mean operators that did not enjoy special and exclusive rights or de facto monopoly for the provision of voice telephony services before the liberalisation.	Communications Committee survey
Fixed broadband take-up	Take-up of fixed networks (subscriptions/100 people)	**Definition:** Number of fixed broadband subscriptions (lines) per 100 people.	Communications Committee survey
Households with a broadband connection	Households having a broadband connection	**Definition:** Broadband connection used by the household includes: DSL, wired fixed (cable, fiber, Ethernet, PLC), fixed wireless (satellite, WiFi, WiMax) and mobile wireless (3G/UMTS). **Notes**: Scope includes Households with at least one member aged 16-74.	Eurostat - ICT Households survey
Enterprises with a fixed broadband connection	Enterprises having a fixed broadband connection	**Definition:** Fixed broadband connections include DSL, xDSL, cable leased lines, Frame Relay, Metro-Ethernet, PLC-Powerline communications, fixed	Eurostat - ICT Enterprises survey

		wireless connections, etc. **Notes:** Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.	
DSL subscriptions share in fixed broadband	DSL subscriptions share in fixed broadband	**Definition:** Share of DSL (Digital Subscriber Line) in total fixed broadband subscriptions.	Communications Committee survey
Broadband - Mobile (supply and take-up)			
3G coverage	3G coverage (as a % of total population)	**Definition:** Coverage is a supply indicator defined as the percentage of population living in areas covered by 3G - third generation mobile networks. **Note:** Indicator collected until 2010. Then replaced with a more specific one on advanced 3G mobile broadband (HSPA).	IDATE - Broadband coverage studies (2005-2010)
Advanced 3G mobile broadband coverage	Advanced 3G mobile broadband (HSPA) coverage (as a % of households)	**Definition:** Coverage is a supply indicator defined as the percentage of Households living in areas covered by advanced third generation mobile broadband (HSPA protocol)	Point Topic Study on broadband coverage
Number of mobile subscriptions	Total number of subscriptions (SIM cards)	**Definition:** Mobile subscriptions are defined as the number of active SIM cards. It includes both voice and data services, installed in telephones, modem, usb keys or other devices.	Communications Committee survey

Mobile take-up	Take-up of mobile - active SIM cards	**Definition:** Number of active SIM cards divided by population. It includes both voice and data services, installed in telephones, modem, usb keys or other devices.	Communications Committee survey
Mobile broadband take-up	Take-up of mobile broadband - dedicated data service cards/ modems/keys only	**Definition:** Mobile Broadband penetration is defined as the number of Active dedicated data service cards/modems/ keys per 100 people.	Communications Committee survey
Market share of mobile leading operator	Market share of leading operator (in % of active SIM cards)	**Definition:** Market share of the market leader based on the number of active SIM cards	Communications Committee survey
Use of mobile phones to access the Internet	Individuals accessing the Internet through a mobile phone via UMTS (3G)	**Definition:** Individuals using a mobile phone or smart phone, via UMTS, HSDPA (3G or 3G+) connections, to access the internet, in the last 3 months. Since 2011 the question specify "away from home or work". 2012 data relate to the use of the mobile phone network with any handheld device. **Notes:** Break in series in 2011 and 2012 as the structure of the question has changed. Reconstructed time series using Eurostat varibales: i_iu3g, i_iu3G1, i_iuhd_mph	Eurostat - ICT Households survey
Enterprises providing portable devices to persons employed	Enterprises providing portable devices to some of their persons employed	**Definition:** The devices (portable computers, tablets, smartphones, PDA phones, etc.) should be provided for business use and the enterprises pay for all or at least up to a limit the subscription and the use costs. **Notes:** The 2011 question was limited to portable devices using at least 3G	Eurostat - ICT Enterprises survey

		technology to connect to the internet. Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector.	
Average Revenue per User (ARPU) in the Retail Mobile Market	Average Revenue per User (ARPU) in the Retail Mobile Market	**Definition:** Total retail mobile revenues divided by number of active SIM cards	Communications Committee survey
Average Revenue per Minute in Retail Mobile Voice Communications	Average Revenue per Minute in Retail Mobile Voice Communications	**Definition:** Total voice related retail revenues divided by total voice minutes	Communications Committee survey
Broadband - Speeds and Prices			
Share of fixed broadband lines >= 2 Mbps	Share of fixed broadband subscriptions >= 2 Mbps - Advertised download speed	**Definition:** Based on advertised download speeds.	Communications Committee survey
Share of fixed broadband lines >= 10 Mbps	Share of fixed broadband subscriptions >= 10 Mbps - Advertised download speed	**Definition:** Based on advertised download speeds.	Communications Committee survey
Share of fixed broadband lines >= 30 Mbps	Share of fixed broadband subscriptions >= 30 Mbps - Advertised download speed	**Definition:** Based on advertised download speeds.	Communications Committee survey
Share of fixed broadband lines >= 100 Mbps	Share of fixed broadband subscriptions >= 100 Mbps - Advertised download speed	**Definition:** Based on advertised download speeds.	Communications Committee survey
Actual Fixed Broadband Download Speed	Actual Download Speed of fixed broadband subscriptions	**Definition:** Average Download Speed during peak periods (ACTSPEED), measured with a specially configured hardware device (SamKnows Whitebox), which runs a series of purpose-built tests to measured various	Study on "Quality of Broadband Services in the EU" SMART 2010/0036

		aspect of Internet performance. The measured speed refers to a sample of subscriptions using a similar technology offered by internet service providers. Offers are not weighted with market shares, so the measured speed cannot be interpreted as the average experienced by consumers.	
Monthly price of Internet Access only	Monthly price of Fixed Broadband standalone Internet Access offers	**Definition:** Monthly price of standalone Fixed Broadband Internet Access offers, including value added tax, excluding the additional cost of telephony or cable line (if any). The minimum and median prices refer to the group of similar subscriptions offered by internet service providers. Offers are not weighted with market shares, so the offers' median price cannot be interpreted as the median price paid by consumers. **Notes:** If no data is present for a country, it is because no corresponding offers have been found on the national market.	Broadband Internet Access Cost (BIAC) annual studies
Monthly price of Internet + Fixed Telephony	Monthly price of Fixed Broadband Internet Access offers including Fixed Telephony	**Definition:** Monthly price of Fixed Broadband Internet Access offers including Fixed Telephony, including value added tax, excluding the additional cost of telephony or cable line (if any). The minimum and median prices refer to the group of similar subscriptions offered by internet service providers. Offers are not weighted	Broadband Internet Access Cost (BIAC) annual studies

		with market shares, so the offers' median price cannot be interpreted as the median price paid by consumers. **Notes:** If no data is present for a country, it is because no corresponding offers have been found on the national market.	
Monthly price of Internet + Fixed Telephony + TV	Monthly price of Fixed Broadband Internet Access offers including Fixed Telephony and TV	**Definition:** Monthly price of Fixed Broadband Internet Access offers including Fixed Telephony and TV (analogue or digital television service), including value added tax, excluding the additional cost of telephony or cable line (if any). The minimum and median prices refer to the group of similar subscriptions offered by internet service providers. Offers are not weighted with market shares, so the offers' median price cannot be interpreted as the median price paid by consumers. **Notes:** If no data is present for a country, it is because no corresponding offers have been found on the national market.	Broadband Internet Access Cost (BIAC) annual studies
Mobile roaming price per minute	Mobile roaming price per minute	**Definition:** Average retail price per minute (in €-cents) on Eurotariff for intra-EEA roaming voice calls made	International Roaming BEREC Benchmark Data Report
Internet usage			
Households with access to the Internet at home	Households with access to the Internet at home	**Definition:** Any member of the household has access to the Internet at home **Note:** Scope includes Households with at least one member aged 16-74.	Eurostat - ICT Households survey

Regular internet users	Individuals who are regular internet users (at least once a week)	**Definition:** Individuals using the internet at least once a week in the last 3 months.	Eurostat - ICT Households survey
Frequent internet users	Individuals who are frequent internet users (every day or almost every day)	**Definition:** Individuals using the internet every day or almost every day, in the last 3 months.	Eurostat - ICT Households survey
Nomadic use of laptop/tablet to access the Internet	Individuals using a laptop/tablet to access the internet, away from home or work	**Definition:** Individuals using a portable computer (laptop) to access the internet away from home or work via any wireless connection (WiFi or cellular networks), in the last 3 months. Since 2012 the question explicitly mention also tablet computer (with touch screen). **Notes**: Break in series in 2011 and 2012 as the structure of the question has changed. Reconstructed time series using Eurostat variables: i_iuport, i_iuport1, i_iumc	Eurostat - ICT Households survey
Individuals who have never used the internet	Individuals who have never used the internet		Eurostat - ICT Households survey
Diversification index for internet usage	Diversification index for the activities realised online by internet users	**Definition:** The diversification index is based on counting how many activities, out of a list of 12, have been realised at least once in the previous months. It is computed at individual level for those individuals having used internet in the last 3 months. **Notes**: The 12 activities included in the index are: sending/receiving e-mails, information about goods and services, reading online newspapers/news, information on travel/ accommodation services, posting messages to	Eurostat - ICT Households survey

		social media, interaction with public authorities, internet banking, telephoning or video calls, selling goods or services, purchases of content (films, music, software, etc.), purchase of goods, purchase of services.	
IPv6 readiness of most visited websites	IPv6 readiness - websites having a AAAA coverage in DNS records (as % of most visited websites)	**Definition:** IPv6 ready websites are those having at least one AAAA in their DNS records (means the website is visible/can reply to users having an IPv6 connectivity). Tests are done every trimester through a script run by the IPv6 Observatory study on the 1 million most visited websites list provided by Alexa. Websites are attributed to countries on the basis of their main operation location as provided by MaxMind GeoIP database.	EC - IPv6 Observatory
Take up of internet services			
Information about goods and services	looking for information about goods and services online	**Definition:** Individuals have used Internet, in the last 3 months, for finding information about goods and services	Eurostat - ICT Households survey
Reading online newspapers/ magazines	reading/ downloading online newspapers/news magazines	**Definition:** Individuals have used Internet, in the last 3 months, for reading/downloading online newspapers/news magazines	Eurostat - ICT Households survey
Games, images, films or music	playing or downloading games, images, films or music	**Definition:** Individuals have used Internet, in the last 3 months, for playing or downloading games, images films or music **Notes**: Biennial indicator not collected in 2011	Eurostat - ICT Households survey

Online banking	using online banking	**Definition:** Individuals have used Internet, in the last 3 months, for Internet banking	Eurostat - ICT Households survey
Telephoning or video calls	telephoning or video calls (via webcam) over the internet	**Notes:** Biennial indicator. Break in time series between 2007 and 2008 because of new wording. Reconstructed time series using Eurostat variables: i_iuph and i_iuph1.	Eurostat - ICT Households survey
Uploading self-created content	uploading self-created content to be shared	**Definition**: Individuals have used Internet, in the last 3 months, for uploading self-created content (text, images, photos, videos, music, etc.) **Notes**: Biennial indicator not collected in 2011.	Eurostat - ICT Households survey
Participating in social networks	participating in social networks, over the internet, last 3 months	**Definition**: Individuals have used Internet, in the last 3 months, for participating in social networks (creating user profile, posting messages or other contributions to Facebook, Twitter, etc.)	Eurostat - ICT Households survey
Looking for a job, sending a job application	looking online for a job or sending a job application	**Definition:** Individuals have used Internet, in the last 3 months, for looking for a job or sending a job application	Eurostat - ICT Households survey
Doing an online course	doing an online course (in any subject)	**Definition:** Individuals have used Internet, in the last 3 months, for doing an online course (of any subject)	Eurostat - ICT Households survey
Information about education & training	looking online for information about education, training or course offers	**Definition:** Individuals have used Internet, in the last 3 months, for looking for information about education, training or course offers	Eurostat - ICT Households survey

Use of eGovernment services, last 3 months	interacting online with public authorities, last 3 months	**Definition:** Individuals have used Internet, in the last 3 months, for interaction with public authorities. It includes obtaining information from public authorities web sites, downloading official forms and sending filled in forms.	Eurostat - ICT Households survey
Sending filled forms to eGov services, last 3 months	sending filled forms to public authorities, over the internet, last 3 months	**Notes:** Indicator collected until 2010.	Eurostat - ICT Households survey
Taking part in on-line consultations or voting	taking part in on-line consultations or voting to define civic or political issues	**Definition**: Individuals have used Internet, in the last 3 months, for taking part in on-line consultations or voting to define civic or political issues (e.g. urban planning, signing a petition) **Notes**: Biennial indicator not collected in 2012.	Eurostat - ICT Households survey
eGovernment			
Availability of eGovernment services - citizens	Basic public services for citizens, which are fully available online	**Definition:** Percentage of public services for citizens out of a basket of 12 basic services (income taxes, job search, social security benefits, personal documents, car registration, building permissions, declaration to police, public libraries, certificates, enrolment in higher education, announcement of moving, health-related services) for which the entire procedure can be completed online **Notes**: Collected until 2010.	eGovernment Benchmarking Reports 2001-2010

Availability of eGovernment services - enterprises	Basic public services for enterprises, which are fully available online	**Definition:** Percentage of public services for enterprises out of a basket of 8 basic services (social contributions, corporate tax, VAT, company registration, statistical data, customs declaration, environment-related permits, public procurement) for which the entire procedure can be completed online **Notes**: Collected until 2010.	eGovernment Benchmarking Reports 2001-2010
Citizen's use of eGovernment services, last 12 months	Individuals interacting online with public authorities, last 12 months	**Definition:** Individuals have used Internet, in the last 12 months, for interaction with public authorities. It includes obtaining information from public authorities web sites, downloading official forms and sending filled in forms.	Eurostat - ICT Households survey
Citizens sending filled forms to eGov services, last 12 months	Individuals sending filled forms to public authorities, over the internet, last 12 months		Eurostat - ICT Households survey
Use of eGovernment services - enterprises	Enterprises interacting online with public authorities	**Definition:** Use of internet for interaction with public authorities, in the last calendar year before the survey, includes: obtaining information or forms from websites, returning filled in forms, following administrative procedures completely electronically or offering products in public authoritie's electronic procurement systems (eTendering). **Notes**: Enterprises with 10 or more persons employed, all manufacturing and service sectors, excluding the financial sector. Break in series in	Eurostat - ICT Enterprises survey

		2011 and 2012 because the structure of the question has changed. Breaks in series because until 2008 sectors follow economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.	
Returning filled forms to eGov services - enterprises	Enterprises returning filled in forms to public authorities, over the internet	**Definition:** Activity carried out over the internet, in the last calendar year before the survey. **Notes**: Enterprises with 10 or more persons employed. Break in series in 2011 and 2012 because the question has changed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.	Eurostat - ICT Enterprises survey
Use of eProcurement services - enterprises	Enterprises submitting a proposal in a public electronic tender system (eProcurement)	**Definition:** Tender proposals should have been submitted in the system itself and not by email, in the last calendar year before the survey. **Note**: Data from previous years are not comparable because the structure of the question has changed. Enterprises with 10 or more persons employed, carrying	Eurostat - ICT Enterprises survey

		out this activity over the internet in the last calendar year before the survey. All manufacturing and service sectors, excluding the financial sector.	
eCommerce			
Ordering goods or services online	Individuals ordering goods or services online	**Definition:** Individuals carrying out this activity over the internet in the last 12 months, for private use.	Eurostat - ICT Households survey
Cross-border eCommerce	Individuals ordering goods or services online, from sellers from other EU countries	**Definition:** Individuals that ordered goods or services for private use over the Internet in the last 12 months from sellers from other EU countries	Eurostat - ICT Households survey
Buying online content	Individuals ordering content or software that were delivered or upgraded online	**Definition:** The online content and software include: films, music, books, magazines, e-learning material, computer software, video games, that were ordered/bought over the Internet in the last 12 months, for non-work use.	Eurostat - ICT Households survey
Selling online (e.g. via auctions)	Individuals selling goods or services online (e.g. via auctions)	**Definition:** Individuals have used Internet, in the last 3 months, for selling goods and services (e.g. via auctions)	Eurostat - ICT Households survey
Turnover from eCommerce	Total electronic sales by enterprises, as a % of their total turnover	**Definition:** The value of sales realised, during the previous calendar year, via any computer networks in % of the total turnover value (in monetary terms, excluding VAT). Computer networks include websites, EDI-type systems and other means of electronic data transfer, excluding manually typed	Eurostat - ICT Enterprises survey

		e-mails. **Notes**: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.	
Enterprises selling online	Enterprises using any computer network for sales (at least 1%)	**Definition:** The sales realised, during the previous calendar year, via any computer networks should represent at least 1% of the total turnover value (in monetary terms, excluding VAT). Computer networks include websites, EDI-type systems and other means of electronic data transfer, excluding manually typed e-mails. **Notes**: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.	Eurostat - ICT Enterprises survey

Enterprises purchasing online	Enterprises using any computer network for purchases (at least 1%)	**Definition:** The purchases realised, during the previous calendar year, via any computer networks should represent at least 1% of the total purchases value (in monetary terms, excluding VAT). Computer networks include websites, EDI-type systems and other means of electronic data transfer, excluding manually typed e-mails. **Note**: Since 2011 the indicator is optional, so EU27 estimates cover less countries and are not comparable with previous years. Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.	Eurostat - ICT Enterprises survey
eBusiness			
Integration of internal processes (orders)	Enterprises that share internally electronic information on sales/purchases	**Definition:** Information on sales/purchases is shared electronically and automatically with the software used for any internal function as: the management of inventory levels, the accounting system, the production management or the distribution management. **Notes**: Enterprises with 10 or more persons employed.	Eurostat - ICT Enterprises survey

		All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.	
Integration of internal processes (with an ERP)	Enterprises that share internally electronic information with an ERP	**Definition:** Have in use an ERP-Enterprise resource planning software package, to share information between different functional areas (e.g. accounting, planning, production, marketing). **Notes**: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment. Break in series in 2012 due to different wording of the question.	Eurostat - ICT Enterprises survey
Use of analytical CRM software	Enterprises using Customer Relationship Management (CRM) software	**Definition:** CRM refers to the use of any software application used for the analysis of information about clients for marketing purposes. **Notes**: Enterprises with 10 or more persons employed. All manufacturing and service sectors,	Eurostat - ICT Enterprises survey

		excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.	
Automatic exchange of business documents	Enterprises exchanging business documents suitable for automatic processing	**Definition:** The indicator refers to sending/ receiving of messages (orders, invoices, payment transactions, transport documents, tax declarations, etc.) to/ from other enterprises, public authorities or financial institutions in an agreed or standard format (as EDIFACT, XML, etc.) which allows their automatic processing without the individual message being manually typed. **Notes**: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.	Eurostat - ICT Enterprises survey
Sending or receiving of e-Invoices	Enterprises sending or receiving e-invoices in a format suitable for automatic processing	**Definition:** The indicator refers to sending/ receiving invoices in an agreed standard format (as EDIFACT, XML, etc.) which allows their automatic processing,	Eurostat - ICT Enterprises survey

		without the individual message being manually typed. **Notes**: Important break in series due to a more detailed question since 2011. Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.	
Electronic Supply Chain Management	Enterprises sharing electronic information on the supply chain	**Definition:** The indicator refers to sending/ receiving all type of information on the supply chain (e.g. inventory levels, production plans, forecasts, progress of delivery) via computer networks or via websites, but excluding manually typed e-mail messages. **Notes**: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector 95.1-Repair of computers and communication equipment. Biennial indicator not collected in 2011.	Eurostat - ICT Enterprises survey

Enterprises having a web site or homepage	Enterprises having a web site or homepage	**Notes:** Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S95.1- Repair of computers and communication equipment.	Eurostat - ICT Enterprises survey
Use of Radio Frequency Identification (RFID) technologies	Enterprises using Radio Frequency Identification (RFID) technologies	**Definition:** RFID tags or transponders are devices that can be applied to or incorporated into a product or object and transmits data via radio waves. The indicator includes their use for person identification, for tracking of supply chain and inventory or for after-sales product identification. **Notes**: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Since 2010 data include also sector S95.1- Repair of computers and communication equipment. Biennial indicator not collected in 2010.	Eurostat - ICT Enterprises survey
Enterprises providing persons employed a remote access to the IT system	Enterprises providing persons employed a remote access to the enterprise's e-mail system, documents or applications	**Notes:** Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector.	Eurostat - ICT Enterprises survey

Enterprises providing portable devices to > 20% of their employed persons	Enterprises providing portable devices to more than 20% of their employed persons	**Definition:** The devices (portable computers, tablets, smartphones, PDA phones, etc.) should be provided for business use and the enterprises pay for all or at least up to a limit the subscription and the use costs. **Notes**: Only the 2011 question was limited to portable devices using at least 3G technology to connect to the internet. Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector.	Eurostat - ICT Enterprises survey
Persons employed provided with a portable device by their enterprise	Persons employed which were provided a portable device by their employer (business sector)	**Definition:** The devices (portable computers, tablets, smartphones, PDA phones, etc.) should be provided for business use and the enterprises pay for all or at least up to a limit the subscription and the use costs. Are included only the enterprises with 10 or more persons employed, from all manufacturing and service sectors, excluding the financial sector **Notes**: The 2011 question was limited to portable devices using at least 3G technology to connect to the internet.	Eurostat - ICT Enterprises survey
ICT Skills			
Have written a computer program	Individuals who have written a computer program using a specialised programming language	**Defintion:** Individuals who have written a computer program using a specialised programming language. The activity could have been carried out ever. Only those having ever used a computer were proposed the question.	Eurostat - ICT Households survey

Have created a Web page	Individuals who have created a Web page	**Definition:** The activity could have been carried out ever. Only those having ever used the internet were proposed the question.	Eurostat - ICT Households survey
Individuals with medium or high computer skills	Individuals with medium or high computer skills (3 or more of 6 computer activities)	**Definition:** The indicator counts individuals having ever carried out at least 3 of the following 6 activities: coping or moving a file or folder, using copy and paste tools, using basic arithmetic formula in a spread sheet, compressing (or zipping) files, connecting and installing new devices, writing a computer program using a specialised programming language. Only those having ever used a computer were proposed the question.	Eurostat - ICT Households survey
Individuals with medium or high internet skills	Individuals with medium or high internet skills (3 or more of 6 internet activities)	**Definition:** The indicator counts individuals having ever carried out at least 3 of the following 6 activities: using a search engine to find information, sending e-mails with attached files, posting messages to chat rooms, newsgroups or an online discussion forum, using the internet to make telephone calls, using peer-to-peer file sharing for exchanging movies or music, creating a webpage. Only those having ever used the internet were proposed the question.	Eurostat - ICT Households survey
ICT skills obtained through formal educational institutions	Individuals who have obtained ICT skills through formal educational institutions	**Defintion:** Individuals who have obtained ICT skills through formal educational institutions (school, college, university, etc.)	Eurostat - ICT Households survey

Persons employed using computers at work	Persons employed using computers with access to the Web at work (business sector)	**Definition:** The computers (desktop, laptop, smartphones, etc.) should have access to the World Wide Web and be used at least once a week. Are included only the enterprises with 10 or more persons employed, from all manufacturing and service sectors, excluding the financial sector.	Eurostat - ICT Enterprises survey
ICT skills perceived as insufficient for the labour market	workers who judge their current ICT skills insufficient for changing job within a year	**Definition:** Individuals with an occupation as employees, self-employed or family workers, were asked if they judge their current computer or Internet skills to be sufficient (yes/not) if they were to look for a job or change job within a year.	Eurostat - ICT Households survey
ICT skills perceived as sufficient for the labour market	workers who judge their current ICT skills sufficient for changing job within a year	**Definition:** Individuals with an occupation as employees, self-employed or family workers, were asked if they judge their current computer or Internet skills to be sufficient (yes/not) if they were to look for a job or change job within a year.	Eurostat - ICT Households survey
Enterprises employing ICT specialists	Enterprises employing ICT specialists	**Definition**: ICT specialists are employees for whom ICT is the main job. For example, to develop, operate or maintain ICT systems or applications. **Notes**: Limited comparability between 2007 and 2012 because of changes in the wording of the question. Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector.	Eurostat - ICT Enterprises survey

Enterprises reporting hard-to-fill vacancies for ICT specialist	Enterprises reporting hard-to-fill vacancies for jobs requiring ICT specialist skills	**Defintion:** Hard-to-fill vacancies during the previous calendar year refer to a range of situations in which enterprises find it difficult to find persons with particular skills (hard-to-fill vacancies due to skills shortage). **Notes:** Limited comparability between 2007 and 2012 because of changes in the wording of the question. Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector.	Eurostat - ICT Enterprises survey
Persons Employed with ICT Specialist Skills	Persons Employed with ICT Specialist Skills	**Definition:** The definition of the ICT Specialist's occupations is based on the new ISCO-08 classification. It includes ICT service managers (code 133), ICT professionals (25), ICT technicians (35) and ICT installers and servicers (7422). **Notes:** New ISCO-08 classification of occupations is used from 2011 reference period, replacing the former ISCO-88. Due to change of the classification and the related definition, the data on ICT Specialists for 2011 and later are not fully comparable with previous years.	Eurostat - Labour Force Survey
ICT in Education			
Computers for educational purposes	Computers for educational purposes	**Defintion:** Computers used for educational purposes include desktop, laptop, netbook or tablet computer,	ESSIE Survey about ICT in Education - SMART 2010/0039

		whether or not connected to the internet	
Schools having a website	Schools having a website	**Definition:** Own home page or web site available at school.	ESSIE Survey about ICT in Education - SMART 2010/0039
eHealth			
Seeking health information	seeking online information about health	**Definition:** Individuals using internet in the last 3 months, seeking information about health: injury, disease, nutrition, improving health, etc.	Eurostat - ICT Households survey
Appointment with a practitioner via a website	making an appointment with a practitioner via a website	**Definition:** Individuals have used Internet, in the last 3 months, for making an appointment with a practitioner via a website (e.g. of a hospital or a health care centre) **Note:** Biennial indicator	Eurostat - ICT Households survey
Research and Development			
Public R&D expediture (GBAORD)	GBAORD - Government budget appropriations or outlays for research and development	**Definition:** GBAORD include all appropriations (government spending) given to R&D in central (or federal) government budgets. Provincial (or State) government posts are only included if the contribution is significant. Local government funds are excluded	Eurostat's statistics on R&D expenditure
Public ICT R&D spending	Public ICT R&D spending (GBAORD in the field of ICT)	**Definition:** Estimate of the ICT share in existing disaggregated GBAORD data, based on the assumption that the share of research in the ICT field in GBAORD expenditure is proportional to the share of ICT specialists in the R&D labour cost. Methodology developped and implemented by JRC-IPTS.	JRC-IPTS Reports on Public ICT R&D Expenditures

Total EC funding to FP7-ICT projects	Total EC funding to participants in FP7-ICT projects	**Defintion:** Value of European Commission funding committed through grant agreements signed, during the reference year, with participants in ICT research projects under the EU's Seventh Framework Programme (FP7). Projects under negotiation are not included.	EC - FP7 ICT research projects
Total cost of FP7-ICT projects	Total cost of FP7-ICT projects	**Definition:** Value of the total cost of the ICT research projects for which a grant agreement was signed in the reference year, under the EU's Seventh Framework Programme (FP7). Total cost of the project is the sum of participants' total costs.	EC - FP7 ICT research projects
EC co-financing rate	EC effective co-financing rate	**Definition:** The co-financing rate is the % of projects total costs which are covered by EC funding grants. Figures include all partners and third parties (as subcontractors).	EC - FP7 ICT research projects
Total number of participations	Total number of participations in FP7-ICT projects	**Definition:** Each project has multiple partners participating and each partner can participate in multiple projects. For each participation there could be an EC funding (some participations do not receive EC funding). Third parties are included as partners, receiving or not EU funding.	EC - FP7 ICT research projects
Average EC funding per participation	Average EC funding per participation in FP7-ICT projects	**Defintion:** EC funding is the funding committed by the European Commission through grant agreements signed during the reference year.	EC - FP7 ICT research projects

		The indicator measure the average EC funding attributed to each partner participation in a specific project.	
Number of NEW participants in FP7-ICT projects	Number of distinct organisations participating in FP7-ICT projects for the first time	**Definition:** The first call of FP7 ICT was in 2007 and all participants are considered as new ones. For each of the following years are counted only the organisations participating for the first time in FP7 ICT calls.	EC - FP7 ICT research projects
ICT sector			
Export of ICT goods and services	Export of ICT goods and services	**Definition:** ICT goods include: Computers and peripheral equipment, Communication equipment, Consumer electronic equipment, Electronic components and Miscellaneous. ICT services include: Communications services, Computer and information services. The value of exports cover both intra-and extra- EU. **Notes:** The HS classifications used over time (HS1997, HS2002, HS2007) are bridged using the method described in the OECD document DSTI/ICCP/ IIS(2010)5.	Eurostat - Trade statistics
Import of ICT goods and services	Import of ICT goods and services	**Definition:** ICT goods include: Computers and peripheral equipment, Communication equipment, Consumer electronic equipment, Electronic components and Miscellaneous. ICT services include: Communications services, Computer and information services. The value of import cover both intra- and extra-EU.	EC - FP7 ICT research projects

		Notes: The HS classifications used over time (HS1997, HS2002, HS2007) are bridged using the method described in the OECD document DSTI/ICCP/IIS(2010)5.	
Background variables			
Number of households	Number of households	**Defintion:** Estimation of the number of Households with at least one member aged 16-74, for the purpose of the survey on ICT usage by individuals and households.	Eurostat - ICT Households survey
Number of individuals aged 16-74	Number of individuals aged 16-74	**Definition:** Estimation of the number of individuals aged 16-74, for the purpose of the survey on ICT usage by individuals and households.	Eurostat - ICT Households survey
Total population	Total population	**Definition:** Eurostat total population estimate 1st of January of the same year	Eurostat population statistics
GDP at market prices	GDP - Gross domestic product at market prices	**Definition:** Eurostat estimation of GDP and main components - Current prices [nama_gdp_c]	Eurostat national accounts
Internet used in the last 3 months	Individuals who have used internet in the last 3 months		Eurostat - ICT Households survey
Internet used in the last 12 months	Individuals who have used internet in the last 12 months		Eurostat - ICT Households survey

ANNEX B

ICT OBSERVATORY START-UP

QUICK MANUAL

9.0

9. ANNEX B
ICT OBSERVATORY START-UP QUICK MANUAL

Here is a list in bullet form of points of attention that need to be carefully considered when setting up an Observatory

1. Objectives

(Are you able to identify and express a set of sufficiently clear and complete objectives for your activities?)

2. Target audience

(Are you able to identify the interlocutors and the beneficiaries of my activities? Public officials, enterprises, citizens, … Can you create long lasting relations that make it possible to periodically meet your interlocutors to verify and/or redirect your activities?)

3. Legal framework

(Does the activity falls within the framework of an agreement? Is there a legal framework for your activities? Does the organization have a statute explicitly stating the competences?)

4. Budget

(Do you have enough funds? Do you need to look for external funds/sponsorships? Have you adopted all measures to ensure that there are no economic/financial obstacles along your course? Are offices and/or laboratories necessary?)

5. Staff and collaborators

(Do you have enough members of staff/fixed collaborators you can rely on? Are all members of staff sufficiently skilled to carry out their activities?)

6. Activity plan

(Can you prepare an annual or multi-year plan for the activity, defining a timeline? What outputs will be produced? According to the beneficiaries of your activities, did you think about how to best transmit and inform on your results? Do you need a communication plan?)

7. Attribution of tasks

(Can you associate every activity to at least one person? Are collaborations or ad hoc consultancies necessary?)

8. Tools

(Can you identify the necessary tools to carry out my tasks? Do you need a web site? Do you need information? Access to data bases? Agreements to access data from particular data bases? Do you need analysis applications? Do you need to carry out surveys? Is it necessary to set up a laboratory or a living lab environment?)

9. Relations and connections

(Can you create and maintain fruitful collaborations with other national and international realities?)

10. Digital policies and EU funds

(Have national and EU directives been taken into consideration in the design of activities – for ex. Digital Agenda? Can the output of the Observatory activities support the territory in the uptake of EU funds?)

REGIONE PIEMONTE	Piedmont Region, Torino (IT)
MANCHESTER CITY COUNCIL	Manchester City Council - MDDA, Manchester (UK)
MFG Innovation Agency for ICT and Media	MFG Innovation Agency for ICT and Media of the State of Baden-Württemberg, Stuttgart (DE)
promotes lodzkie	The Lodz Region - Lodz (PL)
la fonderie Agence numérique ile de France	La fonderie, Regional ICT development agency - Paris (FR)
ΓΕΡΗΕΤ	OCECPR - Office of the Commissioner for Electronic Communications and Postal Regulation, Nicosia (CY)
insiel	Insiel S.p.A – Trieste (IT)
EPMA EUROPEAN PROJECTS & MANAGEMENT	EPMA - European projects and management agency, Prague (CZ)
	Marshall Office of Swietokrzyskie Voivodship - Kielce (PL)
csi piemonte	CSI-Piemonte - Torino (IT)

ONE METHODOLOGY GUIDELINES