

Policy (R)Evolution & Every European Digital

conference proceedings

Irina Zálišová, Iva S. Walterová, Radek Bejdák (eds.)

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Policy (R)Evolution & Every European Digital

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Policy (R)Evolution & Every European Digital

ONE Conference Brussels 2014 Conference proceedings

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Monitoring ICT trends - ONE project results

Piedmont ICT Observatory: main observations and tools

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Biographical Details: Angela and Claudia work for CSI-Piemonte and collaborate on the activities of the Piedmont ICT Observatory. For years now, the Observatory has been an "observation point" in support of regional ICT policies. 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, and exploitation of innovative regional, national and international experience.

Structured Abstract

Purpose & Scope

The ICT Observatory of the Piedmont Region has been monitoring the diffusion of ICT in the regional territory, following the activities of the different actors (Public Administration, Citizens, Enterprises, Schools, etc.) and operating through different tools and methodologies for a number of years. What phenomena are to be analysed? How should it be done? What results to strive for? How to present the available information? How to learn from past missteps? These are but some of the questions to answer when beginning Observatory activities.

Design/methodology/approach

The research methodology adopted by the Observatory varies depending on the matter of observation, but the representativeness of data is maintained at least at a regional level. The main objectives of an observatory can be outlined as follows:

- To get an overview of the regional situation regarding the deployment and use of ICT, useful to guide policies and investments in this field;
- To identify what the factors influencing ICT diffusion and adoption are, in order to define detailed actions to be taken;
- To understand the implications of ICT adoption on regional and local development and competitiveness.

Keywords: *Piedmont, broadband, on-line services, transparency, government, monitoring, methodology*

ICT Observatory Implementation Plan

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Structured Abstract

Purpose & Scope

The main aim of the presentation is to focus on the principles of the ICT Observatory Implementation Plan elaborated by the Lodz Region.

Design/methodology/approach

The Implementation Plan is based on best practices presented in the ONE project, as well as research and analyses of strategic, regional documents, surveys conducted among organizational units of the Marshal's Office of the Lodz Region and other external organizations in terms of their ICT needs.

Results/findings

ICT and Information Society issues are mentioned in all strategic regional documents. There is a fragmentation of ICT activities among different bodies, such as public administration, R&D centers, NGO's, private sector. They act in isolation, do not cooperate and do not exchange information and data.

Conclusions

The ICT Observatory is relevant for regional development.

Keywords: Implementation Plan, ICT Observatory, data fragmentation, organizational model

Policy Intelligence approach in public administration

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Radek Bejdák is a member of the ONE project team. Since 2008 he has worked with the European Projects & Management Agency (EPMA), where he manages projects under the INTERREG, LLP and FP7 programmes. He was also a member of the organising team for three annual international conferences on Eastern European eGovernment Days that took place in Prague between 2008 and 2010. He holds a Master's degree in Political science from Charles University in Prague and his professional interests include the utilisation of ICT in governance processes and investments in ICT.

Structured Abstract

Purpose & Scope

The paper focuses on the use of intelligence approaches in public sector governance in relation with the networking of ICT Observatories and exchange of experiences of several EU regions in the frame of the ONE project.

Design/methodology/approach

In the attempt to formulate significant features of the Policy Intelligence approach as the core of the ICT Observatory, the paper mentions the use of Business Intelligence and Strategic Intelligence tools for public governance. ICT Observatory functions and variety of approaches to ICT observatory in EU regions is described, using experiences of the ONE project partners. A more detailed view is provided about experiences of the Vysocina Region (CZ).

Results/findings

The Policy Intelligence concept can be very useful in the contemporary stage of development of new kinds of public-private interactions. It is a comprehensive instrument, linking all existing forms of interactions of regional public administrations in order to adapt to new governance models and be able to foresee technological changes and societal developments.

Conclusions

The experiences gained by regional partners in carrying out ICT-supported and complexity based activities of ICT Observatories should be further developed, as a useful combination of multidisciplinary and multi-stakeholder cooperation.

Keywords: ICT Observatory, innovation, Business Intelligence, Policy Intelligence, public governance

1 INTRODUCTION

The use of different applications and technologies for gathering and analysing data is no longer an approach used uniquely by businesses; it is now widely spread across public administrations. Similarly like companies, which have established departments of Business Intelligence, competitive analyses and market research decades ago, European regions have to be able to analyse, asses and make informed decisions, if they want to streamline their investments in order to increase the efficiency potential of their territory.

The approach of running government as a business was experimented with and applied in some European models of eGovernment as well as on municipal level in several European countries at the end of the 20th century. Alongside with lots of questions, this approach has brought also some positive results, e.g. new understanding of citizens as customers of government services, which was quite useful especially in New Member States. The application of some business methods into the practice of public governance and administration has brought forward also the use of Business Intelligence (BI) tools.

BI tools are supposed to enable optimal decision-making and provide knowledge of key factors that affect development of businesses or regions. The use of BI in practice of public administrations helps to cover all the hot topics such as data warehousing, data mining and its applications, machine learning, classification and analytical methods for performance evaluation [1]. However, traditional Business Intelligence approach seems to be insufficient for public sector of today. The latest dynamic technological and structural changes and the networked character of the economy have brought along the need for new models of public governance and policy-making. During the last decade, existing business methods of Technology Forecasting and Assessment, as well as the method of Technology Foresight, have been investigated more thoroughly in order to be applied in policy-making. The use of the above-mentioned methods and their combinations for better policy-making were termed in a report of the ESTO group in 2001 as **Strategic Intelligence** tools.¹ According to the report, Strategic Intelligence can be defined as "the set of actions to search, process, diffuse and protect information in order to make it available to the right person at the right time in order to make a right decision" [3].

However, the turbulent development in Europe, including economic threats and crises (starting with the Global Financial Crisis 2008+), brought forward new societal challenges, which have changed the context of everyday life and public values. European politicians and public administrations are facing the crisis of traditional ways of governance and seeking new ways and models, which could reflect latest trends. Involvement of citizens and rise of eParticipation tools, incredible growth of social communications and connectivity (ability to find, create, share, provide and get feedback) represents an enormous information flow to be taken into account as citizens' feedback. Moreover, one can now speak about the process of "*datafication of the world*" (incl. *Big Data* issues), while the demand for openness and transparency brings new challenges, such as a call for Open Data and Open Government.

1.1 Policy Intelligence features

The growing complexity of new phenomena increases the demand for holistic understanding of technological and societal challenges, while decision makers are asked not only for better orientation in the huge amount of data and information, but also for innovative and responsive *public-private interactions*.

¹ ESTO is the JRC-IPTS' "European Science and Technology Observatory", a group of national research centres and other S&T organisations in Europe (see http://esto.jrc.es/).

Unstructured data containing public opinions, awareness of common sense and citizens' feedback have to be taken into account in everyday practice of public administrations, which are still balancing between responsibility towards politicians on the one side and towards citizens on the other. For the adequate provision of public services, knowledge gained from different channels must be processed (analysed, summarised and used) in the same degree as precise statistical and other structured data. In this sense we speak about the need for holistic approach in the process of knowledge creation and decision support, suggested by the concept of the ICT Observatory. The core of this approach is called **Policy Intelligence (PI)**. PI is a comprehensive instrument linking **all existing forms of interactions** of public administrations to adapt to new governance models enabling them to foresee technological and societal developments. Although the concept of PI must be further investigated and better elaborated in the near future, here we can mention some of its outstanding features that can be summarised after partners' exchange of experiences done during the ONE project:²

- The Policy Intelligence (PI) approach provides a wider approach than the set of well-known **Business Intelligence tools** which are **included** in the processes of ICT Observatory for some specific operations.
- PI goes beyond the Strategic Intelligence methods such as Technology Forecasting, Technology Assessment and Technology Foresight, which can be used for selected thematic fields.
- Under the PI approach **actual European Policies** are taken into consideration. In the field of public governance there are e.g. policies for the re-use of Public Sector Information, eGovernment interoperability, Smart Administration, application of INSPIRE principles.
- PI takes into account a **variety of agendas of public administration**, including the provision of citizens-centred services (front-office), running of the efficient governance structures (back-office) and ensuring sustainable development of the territory.
- PI deals with all actual **specifics of information services provision**, including the call for Open Data, Linked Data and operations with Big Data.
- PI works with all kinds of information gained from **structured and unstructured** data and their combinations, from different channels (including social media and eParticipation channels), used by public governance organisations for getting feedback and conducting dialogue with citizens and stakeholders.
- With the PI approach opinions of wider public are taken into account (e.g. using semantic analysis) and so called **common sense is used** in order to ensure the links between decision-makers and the civil society.
- PI allows for utilizing the specifics of the process of decision-making in public governance, where the decision process resembles a maze structure with funnel joints and wormholes.³

² ONE project (www.oneproject.eu) is co-financed from the INTERREG IVC programme.

³ Here we tackle a variety of political systems in the world. We can find more than six major political systems on a local level in Europe itself. Some of them are characterised by duality of executive powers with enormous unpredictable balance swings. In this perspective businesses seem to use more direct decision-making models thus be less prone to unexpected twists. Although governing models in businesses have been constantly changing and new heterarchical models of organisation are occasionally used, we still can claim that companies prefer traditional model of decision-making process.

1.2 ICT Observatory concept and examples

There are many forms of activities deployed by regions in order to reach the required state of knowledge. In case of the ONE project the partners focused on ICT. Particular attention was given to the concept of ICT Observatory, which *supports policy making and evaluation activities on ICT matters*.

In relation with regional governments the concept of the ICT Observatory was developed and applied in practice in the Piedmont Region (IT). CSI-Piemonte distinguishes four elements of an ICT observatory:

- Compass (providing a clear strategy)
- Sensor & Ruler (monitoring trends and indicators)
- Engine (ICT infrastructure, data processing and forecasting)
- Blackboard or Screen (displaying results)

Speaking about its role for the regional development, the basic function of the ICT Observatory is the **co-creation of regional strategies and policies**, which can be supported by such activities as:

- Management and servicing of the technical infrastructure;
- Monitoring the diffusion of ICT among the main socioeconomic actors (households, enterprises and public administrations), including both wired and wireless broadband infrastructures; providing international benchmarks;
- Ensuring data gathering from different sources, processing, archiving/storing and safeguarding. Running of Data management systems, information systems, using visualization apps, GIS etc.
- Analysing the impact of ICT usage (evaluation and assessments);
- Providing information services for internal and external users, possibly including predictions and forecasts; publication of results;
- Identification and dissemination of good practices, promoting discussion opportunities on ICT related topics.

However the Piedmont Region is not the only region which started implementing intelligence activities into regional structures. The ONE project facilitated an opportunity to study activities and possibly adopt good practices of five European regions [Piedmont Region (IT), Friuli-Venezia Giulia (IT), Baden-Württemberg (DE), Ile-de-France Region (FR) and Manchester City (UK)]. Furthermore during thematic conferences of the ONE project, many other regions presented their achievements in this field with similar results.

It is obvious, that each region has adopted a slightly different model of an ICT Observatory, which reflects the regional needs in terms of what to analyse in own territory and how. There are many regions with departments, agencies and other entities, delivering similar outputs as an ICT Observatory, but not completely fulfilling the original definition of the ICT Observatory. *"It was interesting to find that* [the project partner] *Insiel is not a formally set up ICT Observatory, although its activities are similar to those done by such organizations as CSI-Piemonte, another project partner"* [4]. At the same time, the members of the team of the IS Department of the Lodz Region (PL) admitted that their region has comparable branches and tools, which practically work as the aforementioned elements of an ICT Observatory.

The same situation can be identified in the Vysocina Region (CZ), where the majority of activities of ICT Observatory run within the Regional Authority, but are maintained by different departments and are not gathered under the brand of an ICT Observatory. The difference is in the ability and readiness to formalize these entities into stable united structure that would allow smooth information flow between particular elements and in all directions. European regions developed and installed particular branches without wider mutual cooperation which brought obstacles as well as positive results. Heterogeneous development generated branches with a narrow-profiled field of expertise, which often pioneered specific areas and pushed frontiers in understanding of own territory. However, such branches side-lined other elements of an ICT Observatory and neither integrated a complex view of the territory nor supported aggregation and translation of complex results into simple statements. We identified several structural factors to be taken into account while analysing different developments across regions:

- Regional
 - · Political system and the structure of decision-making
 - Power balance between the region and the central government (centralised x decentralised system)
 - · Regional strategies and priorities
- National
 - Legal environment and cultural context
 - Level of the development of national e-services (related to the power balance)
 - · Financial support, institutional and territorial contexts

All in all, the historical, socioeconomic, institutional and territorial contexts must be considered alongside with the networks of actors involved. In the regional context there are all the key actors involved in the exchange and creation of a specific knowledge of ICT Observatory. There usually are Information providers (+PSI), Business (suppliers and users), Academia (suppliers and users), Users (internal and external to public administration), Citizens and Politicians.

Trying to describe the variety of approaches of the ONE project regional partners to creation of an ICT Observatory with functions identified above, we used an intuitive combination of quantified indicators inside four basic elements of the ICT Observatory model, and observations gained during the exchange of experiences between involved regions. Used indicators were agreed upon by ONE project partners as suitable for comparison in spite of some inevitable differences in the methodologies.

The following graph shows the importance of particular elements of an ICT Observatory in each territory. The visualisation has only figurative purposes and is based on authors' observations during study visits and personal assessment. It does not reflect actual maturity and quality of each element. The importance was rated on a scale 1-10, where 1 is least important.



Figure 1: Estimation of importance of ICT Observatory elements - ONE project partners

Source: EPMA, 2014

It was quite useful to analyse partners' interests during the process of knowledge exchange. Partners from new Member States focused their attention on organisational models and on the support of policy-making. Partners from old Member States on the contrary focused on improving already operating elements of their ICT Observatories. These observations lead us to the following set of conclusions:

- 1. Good policy-making is a sustainable process which requires informed decision-making process, effectively supported by ICT and Internet by engaging in cooperative sociotechnical networks.
- 2. Policy Intelligence approach is a holistic, complexity inspired way of taking into account new technological and social challenges and the change of public-private interactions.
- 3. A regional ICT Observatory can be a good practice example of using Policy Intelligence approach for support of policy making and evaluation activities on ICT matters. In its core, it has to work within "*relationships between ICT usages and a human activity (regional) system*" [5].

The findings correspond with results of the research activities carried out by the Piedmont ICT Observatory (PICTO) since 2005, which concludes that "...policy evidence is by no means a simple collection of facts, no matter how effective and scientifically based they can be. Policy relevant evidence in fact involves several dimensions, pertaining to both the observers and those who are observed as well as to their interactions; it raises issues of data reliability, pertinence and access; it includes value judgments by the involved actors;..." [5].

2 DIVERSE MODEL OF THE ICT OBSERVATORY – THE VYSOCINA REGION CASE

Almost immediately after its founding (de jure 1997, de facto 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. These were financial responsibility, huge investments and global data production increase.

As a response to aforementioned issues the regional government supported the idea of creating a regional Data warehouse (DWH) in 2005. This allowed for the use of BI tools and continual transformation to a more complex Policy Intelligence method. The coordinating role was vested in the hands of the IT department of the Vysocina Region. Construction of the regional DWH was made possible through European Structural Funds. In 2012 the region started upgrading its DWH systems with the aim to encompass wider agenda. The IT department of the Vysocina Region is a leader among Czech regions and has been pioneering many fields of IT infrastructure and development including DWH construction. Nevertheless, DWH in the Vysocina Region is not the only one in the country built on regional level. Quite interesting is therefore a small comparison of Czech regions. Different regional strategies and priorities influenced a diversity of DWH solutions and the state of their implementation. The graph shows this development status. As visible, data warehousing and BI tools implementation has reached a certain amount of importance and level of maturity only in four out of thirteen Czech regions (capital Prague excluded).



Figure 2: State of DWH implementation in Czech regions

Source: Pavlinec, P., (2012), Status of regional projects supported from IOP, power point presentation [7]

2.1 Organisational model

In the Vysocina Region, in comparison to the model of the ICT Observatory, we can identify several departments, which ensure different functions of the ICT Observatory: IT Department, Department of Analyses and Management Support (DAMS) and Communication Department. Altogether, the departments of the Regional Authority of the Vysocina Region supply all identified functions of the ICT Observatory. So, while the IT Department is responsible for the so-called "ENGINE", and partly for "SENSOR" function in the sense of monitoring ICT trends, the functions of "SENSOR" and "RULER", as well as "COMPASS" is provided by the DAMS.

The DAMS is focused on providing general services to all departments of the region and on-demand complex analysis elaboration mainly by operating the DWH and BI infrastructure. At the moment DAMS is operated by eight employees, mostly technicians, statisticians and quality management experts. General tasks of the DAMS are:

- 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, consistency with regional DWH.
- Proposing major general procedures for spending cuts and revenue rising of the regional budget.
- Monitoring efficiency of regional authority internal processes, process modelling and optimization.
- Decision-making support on the purchase of supplies and services for the RA and its established contributory organizations.
- Conceptual Planning: management, coordination, and ICT support for development projects in the region; coordination of development activities with state and EU administration bodies.

In parallel to in-house services, the DAMS provides services to external users, mostly citizens, municipalities, contributory organisations, regional companies and investors. The amount of publicly available data through the website of the analytical portal (analytika.kr-vysocina.cz) is significantly lower compared to internal resources due to privacy constrains.

2.2 BI and DWH architecture

On a general basis the BI solution in the Vysocina Region has 3 layers:

- **Data processing and import layer** In this layer the tasks (data pumps, ETL processes) load data from primary sources (accounting, statistics, published texts) and import them into operation storage of the DWH.
- Analytical layer this layer transforms imported data into multidimensional objects data cubes. Such cubes allow effective and fast work with data.
- **Presentation layer** this layer "cuts" multi-dimensional data into 2D view suitable for presentation and analytical software (statistical software, geographical analyses, visualisation) [8]

Based on this structure, the implementation of the whole wide set of comprehensive and very different agendas of the Regional Authority is ensured, from economics and public procurement, through project management and education, up to cooperation with key regional actors and 760 municipalities. In addition, all eHealth and Integrated Rescue systems are included and run smoothly on the DWH platform. The Vysocina Region has reached a high level of maturity in this field in comparison to other regions in the Czech Republic.

3 CONCLUSION

The ONE project was an attempt of regional actors, who support decision-making, to set a network and to exchange ideas and experiences about models and functions of ICT Observatories.

During the project execution, the cooperation of regional practitioners and researches has led to the conclusion, that the understanding gained by means of ICT-based models and through practical engagement by working with ICT supported innovative units or organisations (agencies, Living Labs, etc.), allows stakeholders to share a common approach to policy design.

It is obvious that each region has adopted a slightly different form of an ICT Observatory, which reflects the needs of what to analyse in own territory and how. The particular set of functions of each ICT Observatory can vary according to the local economic, social and cultural context, having in mind the imaginary 4 basic elements of the commonly agreed model (Compass, Ruler, Engine, Screen).

Complexity inspired way of taking into account new technological and social challenges and the change of public-private interactions is strongly embedded into the ability of ICT, as the engine, to support inter-organizational linkages among different government offices and stakeholders.

The core approach of the ICT Observatory can be called Policy Intelligence. The Policy Intelligence approach is wider, than a set of well-known Business Intelligence tools, which are included, and also goes beyond those so called Strategic Intelligence methods such as Technology Forecasting, Technology Assessment and Technology Foresight.

The Policy Intelligence concept can be very useful in the contemporary stage of development of new kinds of public-private interactions. It is a comprehensive instrument, linking all existing forms of interactions of regional public administrations in order to adapt to new governance models and be able to foresee technological changes and societal developments.

The experiences gained by regional partners in carrying out ICT-supported and complexity based activities of ICT Observatories should be further developed, as a useful combination of multidisciplinary and multi-stakeholder cooperation.

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Regional ICT Development Strategies in the Vysočina Region, Czech Republic

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Structured Abstract

Purpose & Scope

The purpose of the presentation is the description of challenges of the creation of a regional ICT strategy, including experiences with the setting of the IT department of the newly established Regional Authority and servicing the region area. The leapfrog from the greenfield to the regional ICT broadband Rowanet - last generation optical fibre network, and possible future of regional ICT.

Design/methodology/approach

Setting of IT services at the regional greenfield and elaborating of historically first regional ICT strategies. From technology-driven and cost-driven approach to innovation-driven and long-term visions approach The use of supportive mechanisms and tools (creation of regional financial tools to support ICT development). Developing capacities for growth (setting goals with Deloitte, state-of-the-art and ICT audit with Gartner). Utilization of Structural Funds and Community programmes, exchange of experiences in European and international ICT supported projects (LDA-V4, eCitizen II, DE-LAN, OSEPA, CEMSDI, etc.). Data analytics and new types of infrastructure to create public value and support eGovernment services.

Results/findings

Combination of the technology-driven and cost-driven approach with the innovation-driven and long-term visions approach. Experience, the resulting activities and influence on the development of the region.

Conclusions

- Positive result of a new paradigm: ICT as a key engine for regional development and innovation. The crucial role of political representation and its decision-making in terms of the regional ICT strategy.
- The need for permanent monitoring of new technological and societal challenges and trends for regional empowerment and better provision of ICT-enabled public services.

Keywords: regional ICT strategy, broadband, eGovernment, IT projects

Monitoring of regional development policy between 2014-2020

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Structured Abstract

Purpose & Scope

To present key rule of coordination in the process of building modern ICT monitoring system of regional development policy in the period of 2014-2020.

Design/methodology/approach

Strict rules about division of competences between different implementing authorities involved in the organisation of EU funds at the regional level between 2014 and 2020.

Results/findings

A concrete and practical system of coordination from the planning phase to implementation of ICT tools and systems, which addresses monitoring of regional development policy.

Conclusions

Decentralisation is the basic condition for an effective monitoring system to function.

Keywords: regional development policy, period 2014-2020, ICT systems, monitoring

The Regional Service Card in the Friuli Venezia Giulia Region

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Structured Abstract

Purpose & Scope

This presentation introduces the Regional Service Card distributed to all citizens in the FVG Region, showcasing its functionalities and privacy-compliant features.

Design/methodology/approach

The Card is multifunctional, valid as fiscal code, Healthcare ID and authentication device to access Public Administration services online. Strong authentication is attained via an asymmetric cryptography system verifying the Card's validity; this ensures privacy compliant access to sensitive data via browser.

Results/findings

Given they have a computer and an Internet connection, the Card allows citizens access to their own Healthcare, family and tax data and records, as well as to a number of certificates and services, e.g. changing the family doctor, paying services fees etc. The list of services can be updated based on the Public Administration's needs.

Conclusions

The Card allows citizens to save time by safely accessing Public Administration services online. The core of he system can be transferred and adapted to other contexts requiring personal identification and safe authentication via the Internet.

Keywords: service card, strong authentication, online services, public e-services

Smart Places for Smart Territories

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Structured Abstract

Purpose & Scope

The digital era and the development of mobile devices give rise to new uses. New ways of establishing relationships are emerging, affecting our day-to-day life. This "connected" society generates new ways of working, promotes the mutualisation of skills through networks. This presentation focuses on one specific public policy implemented by the Ile-de-France Region that aims at sustaining such new ways of working, by supporting the growth of "third places" (smart work centres, coworking spaces and fablabs) instrumental in the social and economic development of territories.

Design/methodology/approach

About fifteen projects of third-place implementation are selected each year and funded through an annual regional call for proposals. Besides, good practices and synergies between these projects are promoted.

Results/findings

Since 2012 thirty projects have been funded with an overall amount of 2 million Euros. This has contributed to the rapid growth of third places in the Ile-de-France Region (from one place in 2008 to approximately 50 in 2013).

Conclusions

Third places are a new key incitement for the development of smart territories, and public regional actors can play a strong catalyst role as shown on the example of Ile-de-France.

Keywords: coworking, public policy, smart work centres, economic development, mutations of work, third places, smart regions

Integration and interoperability for (regional) development

Interoperability in Romania and the EU

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Structured Abstract

Purpose & Scope

The main aim of this contribution is to present an analysis of the situation of interoperability issues in Romania. It will discuss the eRomania strategy 2010-2013, specifically focusing on the question of how much the existing eGovernment initiatives and common eService platforms for business and citizens have fulfilled their roles as key drivers of interoperability efforts in Romania.

Design/methodology/approach

Due to the character of the proposed presentation the approach will be a qualitative one, based mainly on Internet research, content analysis and personal discussions.

Results/findings

The most interesting findings of the research have been the results of the mapping of a network of formal and informal relations between the different institutions. The personal interviews that were conducted have also been very fruitful.

Conclusions

Romania faces several difficulties in implementing the National Interoperability Framework due to institutional, technological, educational and content-related causes. All these hurdles will be further discussed in the presentation.

Keywords: interoperability, eGovernment strategy, compatibility, eServices, Romania

The European Union Location Framework – Location Enabling e-Government

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Biographical Details: Engineer with years of experience in the Space Industry in programme management, business planning and development of satellite systems, joined in 1999 the European Commission – the Joint Research Centre (JRC). Coordinated inter-institutional and space application activities such as the European Research Area, Galileo and GMES/Copernicus initiatives. Member of the European Commission Delegation of the inter-governmental Group on Earth Observations (GEO) concerned with Ministerial Summits political negotiation process for international agreements in Earth Observation. He is now responsible for the European Union Location Framework (EULF), an action under the Interoperability Solutions for European Public Administrations (ISA) programme, compatible with the European Interoperability Framework (EIF) and the Digital Agenda for Europe (DAE), based on the information infrastructures implemented through the INSPIRE Directive 2007/2/EC and the related legislation.

Structured Abstract

Purpose & Scope

To explain how a European Union Location Framework of guidance, recommendations and actions to enhance the use and interoperability of location information can help deliver better public services and stimulate growth and to describe the steps being taken to develop and validate the framework.

Design/methodology/approach

Initial work to develop and evaluate the 'EULF concept' is being undertaken by a project within the Interoperability Solutions for Public Administrations (ISA) Programme, working closely with e government and geospatial stakeholders.

Results/findings

A European-wide survey has highlighted a range of common issues and some excellent good practices - the conditions for an EULF were therefore confirmed. A Vision has been developed, scoping out the potential 'framework', and elements of the framework are being documented in an EULF Blueprint.

Conclusions

Applying best practices in the use of location information in e-government can deliver benefits to governments, citizens and businesses. Work is well advanced in defining and evaluating the approach to make this happen.

Keywords: location, e-government, interoperability, public services, INSPIRE

Homer: a case study of federation among open data portals

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Saverino Reale has worked at CSI Piemonte since 1996 first as a Java developer and then as a systems GIS designer (Geographic Information System). He has excellent knowledge of GIS and geographic data and expertise in quality process, project management. He is also an expert in Public Sector Information (PSI). Over the past three years he has managed regional projects on transparency and open data and international projects such as Homer and Open-Dai.

Structured Abstract

Purpose & Scope

Nineteen partners from nine countries participate in the HOMER project (Harmonising Open Data in the Mediterranean through Better Access and Reuse of Public Sector Information), funded by the MED territorial cooperation programme. Its objective is the setting up of a federation among Open Data Portals of partners, to share common datasets related to Mediterranean strategic domains: agriculture, culture, energy, environment, tourism.

Design/methodology/approach

The Partners signed a Memorandum of Understanding where technological, organizational and legal boundaries have been defined. An analysis identified the informational and technical requirements for the platform, and a survey assessed the state of the art on the supply of data sets provided by APIs, used to harvest the set of metadata and to collect them into the system. Partners developed an effective strategy able to harmonize open data policy and portals across the MED area with a wider re-use of PSI. This led opening of relevant data in each project territory with an impact on policies in the MED area encouraging interoperability and cooperation between partners with different skills and from different contexts and territories.

Results/findings

The result of the partners' efforts was a virtual system that allows semantic multi-language search of metadata combining thesaurus families in all languages involved, queried by a semantic search engine and a translator that refers to multidisciplinary LOD thesaurus EuroVoc, to perform query expansion and to enable cross-lingual retrieval. Moreover the technological solution is configurable in order to reach new stakeholders, using new domains, new languages and new open data portals. All technological components are provided and managed by CSI Piemonte based on an open source philosophy.

Conclusions

HOMER opened hundreds of public datasets enhancing digital transparency and promoting the open data culture across the Mediterranean: the "opened" PSI are federated, setting up the basis for a transnational Open Data Federation. The Homer Federation is potentially open to future accession of other Partners beyond the project. Those who wish to expose their open data catalogues within the HOMER Federation have the opportunity to aggregate their respective and complementary competencies in order to maximize advantages and effects of a common federated index.

Keywords: Open Data, Federation, EuroVoc, Semantic Multi-language.

EMIS: European Mobility Information System

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Structured Abstract

Purpose & scope

EMIS ("European Mobility Information System") is an open-access, international and collaborative platform providing information on the regulatory framework and opportunities related to mobility in the creative and cultural sector. It targets artists/creative professionals, service providers and policy makers interested in undertaking, producing and facilitating international artistic mobility projects or in formulating policies on the matter. EMIS' purpose is to support decision-making and to render shared and user-validated information related to mobility accessible in a structured manner.

Design and methodology

Currently in pilot phase, EMIS gathers, treats and disseminates complex and unstructured data in order to produce relevant information for its users. EMIS' approach is user-centric. Instead of providing premade solutions, EMIS encourages its users to participate in the elaboration of information, through standardised ontology-driven information and metadata extraction procedures based on semantic analyses.

Conclusion

EMIS aims to improve the interoperability of concepts and methods to enhance knowledge transfer.

Keywords: Creative sector, cultural sector, mobility, participatory, international, open-access, user-validated information

Digital tools in the integration of new migrants

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Structured Abstract

Purpose & Scope

The presentation will explore the role digital technologies can play in the integration of new migrants in Europe.

Design/methodology/approach

The presentation will draw on specific work by Praxis through using IT in advice work, the development of a European Migrant Advisors Toolkit and the development of a blended learning project for the teaching of English. Crucial to this is a discussion on accessibility and availability of digital technologies for migrant communities and literacy in their use.

Results/findings

There are positive experiences of using new technologies in a variety of ways in practice. There is a mixed picture regarding accessibility and competency. Considered approaches by agencies will bring rewards.

Conclusions

Digital technologies have a key role to play as a means to scale information flows, create dynamic learning but must always be a complement rather than a substitute to face to face engagement between new and existing communities.

Keywords: Migrant Access, Blended learning, Digital literacy

Transforming datasets into information: An exposition set up by high school students

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Structured Abstract

Purpose & Scope

Big Data, Open Data are the new keywords that have recently appeared. As part of a strategy aiming at more transparency, public administrations are freeing a great amount of datasets. But how do we transform data into information? This project will set up an exposition of data-visualisation posters. These posters will be created by high school students.

Design/methodology/approach

Based on an approach called "Infolab" and developed by the F.I.N.G. (Foundation for the Next Generation of Internet); the participating students will collect available datasets and identify missing ones to create a poster dealing with a theme decided by their teacher.

Results/findings/ Conclusion

With partners from national educational institutions the Rhone-Alpes Region will document the project. Elements such as institutional partnership or datasets identification will be published. Thanks to this project the Region will also identify digital skills implemented by the high school students throughout the project.

Keywords: data-journalism, open data, exposition, high school students

1 INTRODUCTION

Big Data, Open data, data-driven journalism and such terminology has appeared in a framework, where digital technology developments make storage, processing and broadcasting of a massive amount of data possible. In this context national and local governments are making a commitment to open and to share their public data. This is done in a spirit of increasing transparency towards the public; they, for example, publish public accounting or pollution indicators online. But this is also done to support social innovation and the creation of new services.

This great amount of datasets has to be explored, studied or re-used. How can this be done? How can citizens appropriate these new gold mines? Can these newly available datasets help them develop a new form of digital citizenship? After describing a new data public space in the following lines, a project of data-driven journalism involving high school students will be presented.

2 DATA DEFINES A NEW PUBLIC SPACE

In many of her research works [1], Valerie Peugeot (Searcher for Orange Lab) has proposed to define a new public space, built on data. This new public space, allows citizens to read, use, transform dataset for their own use. In fact, they can appropriate themselves this new amount of information and develop digital citizenship.

This data public space enhances:

- Stolen datasets: These datasets are acquired by hacking. Some consider them as stolen. Nevertheless, this phenomenon has to be taken into account. The Wikileaks [2] website is the most well known example worldwide.
- Open datasets: These datasets are open to the community by public or private actors. Firms from the energy sector (electricity, water, etc.) are the ones who provide the biggest amount of data.
- Collected datasets: These datasets are collected by citizens throughout specific activities. For example, people collect radioactivity measures and share them (in Japan near Fukushima for instance) or in India the web site "I paid a bride", allows users to apply each time they are asked for a bride. (Thus lowering the corruption level in India)
- Using and mixing all these different datasets allows citizens to comprehend the purpose of the information and have a better grasp of their digital citizenship.

3 RHONE-ALPES NUMERIQUE : SIX KEY ACTIONS

In March 2012, the Rhône-Alpes Region voted a new strategy for the digital development of its territory called Rhone-Alpes Numerique [3]. It is divided into six key actions as described in the figure below.

Figure 1: Rhone-Alpes Numérique basic key actions





Each key action (KA) aims to address specific domains of the digital society:

- 1. With key action n°1, called "Innovation within reach", we will develop a robot for college students. This robot will act as an avatar for any student who is, due to a temporary long term sickness, not able to attend class.
- 2. With key action n°2, called "Digital Solidarity", we will fight exclusion by setting up a digital pass.
- 3. With key action n°3, called "Access to Mobile Services", we will work on liberating public data and providing a public store to share data and applications.
- 4. With key action n°4, called "Digital Economy", we will help local SME's use new digital tools to develop their business.
- 5. With key action n°5, called "High Speed Broadband", we will support public initiative to deploy very high speed Internet access for all.

All these key actions are administrated by a political committee who assumes this strategy's regional governance. They are also fed by a digital observatory. Regarding key action n°3, one of the key elements that can guarantee success, is to reinforce educational actions towards political decision makers and public data re-users. The digital department has conducted a project mapping parties and is planning an exposition (see below).

Figure 2: Explaining dataviz with dataviz



Source: Poster drawn by la Fonderie to represent the different concepts of data-visualisation [5] (2012)
4 DATA-VISULISATION A NEW TOOL FOR DATA-JOURNALIST

Opening data cannot be considered as a goal. Reusing data is more important. For example, creating new applications or services, transforming these dataset into information can be cited as new forms of data usage that have been developed throughout the past years.

Anglo-Saxon journalists [4] were the first to use data-visualisation to enrich their papers. This is called data-driven journalism. Data-visualisation is gathering methods of graphical representation in two or three dimensions. Colour can be used.

Although selecting dataset, choosing a representation is a form of subjectivity itself, the aim of this step is to give sense or a perspective to the numbers and the data that are studied. This working process addresses our visual intelligence. Data visualisation is an easy way to help understand complex notions.

5 THE PROJECT

5.1 An exposition of posters drawn by high-school students

The Region Rhône-Alpes digital department is conducting a reflection on opening the institution's data. The purpose of this initiative is to increase awareness and to convince all the actors to participate in a global opening of the regional datasets. This will allow the Region to increase data-driven patrimony and to position itself as an institution on the cutting edge of open data re-use.

Through a partnership with regional education authorities of Lyon and Grenoble, an exhibition of data-visualization will be held in the Region Rhône-Alpes headquarters. This exhibition is planned for the end of the school year. A preview will take place on May 19th. It will increase high school students' awareness about the use of open datasets. This event at the heart of the regional institution will also be an opportunity to convince the territorial decision-makers to transform the current reflections into projects and experiments.

5.2 DYNAMICS

The project depends on 7 dynamics, described below:

- 1. The time investment of voluntary teachers to lead the experiment with their class.
- 2. The contribution of the pioneers of data-driven journalism in France. We hired writers and computer graphic designers of the online magazine OWNI [6] accompanied by the activists of "the newly born school of the data ", from the network OKF France [7]. This project is also supported by the FING [8].
- 3. The networking of professional journalists who volunteered to train themselves in the stakes of data-driven journalism and data-visualization. (with the professionals of OWNI and OKF France, during a specific work seminar).
- 4. The raising awareness and the training of the voluntary teachers in the project on the occasion of a meeting with the teachers organized in the beginning of the project.
- 5. The implementation of a program of interventions in the classes to allow the pupils to act as "data-driven journalist" and to produce relevant computer graphics.

- 6. An evaluation of the educational process driven by the regional education authorities of Lyon and Grenoble.
- 7. The production and the sharing in Creative Commons of every production necessary in the whole process. This concerns scenarios, unwound, testimonies, and formative.

5.3 Schedule

The project started in September 2013 and will end at the end of the current school year. It has three phases:

- 1. Phase 1 is "building the partnership" scheduled from December 2013 until March 2014. Key steps were:
 - Constructing the partnership with the regional educational authorities, and the local association Frequence Ecoles. [9]
 - Identifying the high school classes who volunteered.
 - Training the journalists and the teachers.
- 2. Phase 2 is "drawing the posters" scheduled from March 2014 until May 2014. Four sessions in classes are planned:
 - Session 1 is dedicated to the discovery of what data-driven journalism means.
 - Session 2 and 3 are dedicated to the creation of the graphics that will be incorporated into the poster. Pupils are accompanied by a professional to master the tools.
 - Session 4 is dedicated to the drawing of the poster by incorporating graphics and texts produced earlier.
- 3. Phase 3 is "displaying the posters" scheduled from May 2014 until June 2014 and dedicated to the final step towards drawing conclusions. At this moment the exposition programme is still under construction. We intend the programme to feature several highlights such as:
 - A press conference;
 - A presentation to the agents of the Region Rhône-Alpes;
 - A public debate on the theme of open data and data driven journalism.

6 CONCLUSION

Throughout this project we will try to expose that digital citizenship needs data appropriation. On the other hand, users use data to inform themselves and develop digital competence. Thus they have a better grasp on their digital citizenship.

User driven innovation [10] and technology is now commonly accepted; data are likewise. Users have the need to drive the open data movement. In this way, they will capture the essence of the open data movement and be able to gain access to an expanded digital citizenship. Therefore, they will not be left aside from the new public space that is emerging.

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Digital strategies and tools for smart cities and regions

High-tech Innovation Activities and ICT Infrastructures in Piedmont

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Structured Abstract

Purpose & Scope

The paper focuses on the potential that local ICT socio-technical systems have on supporting the development of highly innovative activities. They play a dual role as enablers to better satisfy the needs of innovation activities and to anticipate problems, and as catalysers to support new modes of knowledge appropriation, diffusion and communication strategies.

Design/methodology/approach

The paper takes into account the results of a recent research carried out by the University of Turin involving High Intensity Knowledge Activity and Services (HIKAS) and based on a series of deep interviews (65) conducted among these businesses.

Results/findings

Three relevant phenomena seem to arise from the analysis: the emergence of new kinds of professional and entrepreneurial activities; the creation of a supply for innovative services; the rising of a combination of new competences, new services and potential new needs.

Conclusions

An effective combination of social and technological networks can help the processes of a self-organisation of services and activities, thus developing learning processes and practices useful for local development.

Keywords: Piedmont, ICT infrastructures, High Knowledge Activities, Innovation, Cooperation

1 INTRODUCTION

A good level of quality of ICT infrastructure (bandwidth and reliability of service provided) is the essential pre-condition for the setting up of territorial Socio-Technical Systems (STS), the latter resulting from the intersection and the co-evolution of social and technological networks. STS represent "the organization field" through which ICT can play a double role (enablers of innovation activities development and catalysers for new ways of knowledge production and diffusion) thus generate spill-overs in terms of economic development and innovation diffusion. Starting from this hypothesis, the paper presents the results of a recent research carried on by the University of Turin based on two different methodologies: on the one hand a review of institutional data sources has been conducted in order to provide a synthetic representation of ICT situation in Piedmont (infrastructure and use), on the other some in-depth interviews have been administered to a sample of innovative local firms.¹

2 ICT DIFFUSION, USE AND ADOPTION IN PIEDMONT: CITIZENS AND FIRMS

Referring to the above-mentioned assumptions, ICT situation in Piedmont is not fully satisfactory and reveals contradictory aspects. As far as it concerns infrastructure, data show dissimilarities in broadband service diffusion between urban and sparsely populated areas. Despite several interventions in support of ICT diffusion, Piedmont has still not succeeded in getting widespread infrastructure, good enough for high-speed internet connections, as the investments do not assure short-term profits due to its geomorphological configuration. Figure 1 shows that although in 2013 84.8 % of the territory is covered by fixed broadband service working on ADSL, a considerable 8.2 % has only wireless coverage available and the remaining 7 % faces the Digital Divide (with less than 2Mbps of bandwidth available).

As far as broadband adoption by social actors is concerned the regional profile shows a delay on the side of citizens not only if compared with the most advanced European areas, but also with other Italian districts (53 % Piedmont's families with access to the Internet against 55 % in Italy and 73 % in EU28, Eurostat 2012), while Piedmont's firms seem to have a relatively higher propensity in subscribing to Internet access provision contracts (over 90 % versus 88 % of Italy, ISTAT 2012). This situation has, however, been ascribed to the two following aspects: a) the composition of regional productive structure (advanced manufacturing, in itself highly prone to the adoption of high technologies), b) data referred to the citizens (see above), that could be considered a proxy for a regional context still unprepared to fully receive the innovation potentially represented by ICT broad adoption.

¹ The research in question is part of a three-year project (2010-2012) conducted in six Working Packages at the Dipartimento di Scienze Sociali of the University of Turin (now Dipartimento Culture Politica Società) and entitled Progetto E.R.I.CA. "The Institutional and Cultural Roots of Development in a Knowledge-Based Society. Enriching Regional Innovation Capabilities in the Service Economy". The project has been carried out with funding allocated by the Bando Scienze Umane e Sociali 2008 of the Piedmont Region. The Working Package 2 "Regional ICT Infrastructures and development of High Intensity Knowledge Activity and Services (HIKAS)" is concerned with the research referred to here. The data have been collected using survey and qualitative techniques through (a) long interviews with around 65 respondents, entrepreneurs in the various sectors ICT. and key informants b) local officials and heads of training and development initiatives (development poles, incubators, etc.), selected according to a matched sample in three of the seven Piedmontese provinces (Torino, Cuneo, Novara); (b) collection and analysis of case studies.



Figure 1 – Digital divide in Italian Regions and in Piedmont (2013)

Source : National Department of Economic Development (MISE)

With regards to the use of Internet by the citizens, Piedmont lags behind the more advanced European territories, while it is within the average of the other Italian regions (54 % regular users in Piedmont, 53 % in Italy and 70 % in EU28, Eurostat 2012). However, an evident growth and improvement of the uses of the Internet must be highlighted, with increasing expectations about needs and requirements for broadband connection in the Piedmont territory [4].



Figure 2 Internet use by firms in Italian regions at 2011

Source : Piedmont Information and Communication Technology Observatory (PICTO)

For firms, instead, most delays happen in terms of the use of Internet for rethinking business models and marketing strategies for goods and services. In general, it must be underlined that firms in Piedmont do not show a high propensity for ICT utilization. In fact, notwithstanding the better ICT infrastructure of Piedmont enterprises compared with other Italian regions, they are within the national average for basic Internet use, but considerably delayed in terms of most of the advanced uses (see Figure 2).

3 LEARNING FROM THE FIELD: THREATS AND OPPORTUNITIES FOR BUILDING A STS

A clear picture of this situation is provided by the 65 case studies included in our research. The case studies deal with small (3 to 20 operators) ICT firms (active in software development and web 2.0) usually operating in a B2B market. From the interviews we understood above all a negative opinion about the quality and reliability of connections, except in the urban area. This situation may have two types of results:

- 1. In the short term, it affects work quality and increases direct costs and expenses connected with the relationship with clients and public administrations.
- 2. In the medium to long term, it can delay the emerging of a local market for innovative services, acting as a stumbling block for potential activities connected to web 2.0., which represent a growing market.

The above-mentioned issues indicate the difficulty in configuring a territorial STS. Nevertheless, some experiences in the Piedmont territory can be important for the diffusion of an STS model (of which ICT is a basic component), allowing the activation of mechanisms for interaction and diffusion of innovative practices.

A first example is represented by some local Wi-Fi experiences, which stress the relevance of broadband as a network for innovation and technological transfer aimed at experimentation with new services and applications. They show the possibility to create synergies among local social actors and simultaneously improve the opportunities for innovative enterprises. Particularly, they can represent replicable intervention models leading to that ideal situation, in which a diffused access to broadband could offer connectivity inside cities, towns, mountain villages, as well as in a megalopolis, thus allowing mobility from one site to the other, free from the choice of being connected and from expensive connections. From a social point of view, they can be considered laboratories where new practises of public-private cooperation and participation between institutions and socio-economical actors for the diffusion of telecommunication services can be tested, in order to improve the different sectors of the social organization through telecommunication [2].

A second example refers to the possibility of fostering the growth of a production and distribution ecosystem based on users' contributions. A demonstration of this model is represented by the history of Arduino, an open hardware architecture designed by a small company of Ivrea (Turin) and diffused on the web for free. A community soon took shape around it will allow for this process to be known and tested all over the world. Therefore it was possible to develop programmes able to connect this hardware with almost any electronic object, making it an important resource for the "internet of things" and conquering the international market [3].

4 CONCLUSION

These cases indicate how a policy approach to follow-through of STS formation processes could at least release most of ICT potentials in the development and diffusion of innovative activities in support of territorial development.

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IPv6 policies and lessons for Digital Europe

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Structured Abstract

Purpose & Scope

Without IP addresses, representing the basic building blocks of the Internet, computers could not recognise each other and connect to the World Wide Web. The pool of IP address blocks allocated for Europe is practically exhausted. To make every European digital and ensure enough IP addresses both for computers and smart devices, it is vital to widely adopt IPv6.

Design/methodology/approach

The transition to IPv6, as a complex process, must involve all stakeholders. The paper/presentation is focused on governments and their role and compares several European countries.

Results/findings

The EU-funded GEN6 project brings a unique study comparing IPv6 deployment in public administration and evaluates government policies. The benchmarking study shows that policies and legislation represent an effective tool in bringing IPv6 deployment into daily life.

Conclusions

The experience of the Czech Republic shows that public administration can play the role of an innovation-driver and that there are some effective measures such as public tenders conditions that can support IPv6 deployment.

Keywords: IPv6, eGovernment, Internet Governance, Policies

1 INTRODUCTION

IP addresses represent the basic building blocks of the Internet. Without an IP address it would not be possible to connect to the World Wide Web and therefore computers would not be able to mutually recognise each other and thus become linked within the global network. On the one hand, the current pool of IP address blocks allocated for Europe is practically exhausted, on the other hand, new and new users are still getting connected to the Internet. Besides connecting users, IP addresses are needed also for machine to machine (M2M) communication and for the Internet of Things, represented for example by devices for smart homes and offices such as sensors (e.g. for monitoring hydro and meteorological information such as the water levels), web cameras, various meters (such as electricity meters) or switches (e.g. for heating or window blinds).

The solution how to make every European digital and ensure enough IP addresses for all, not only for connecting computers but also for a large scale of smart devices, is to widely adopt IPv6. From the European and policy point of view, IPv6 support is involved also in the "Digital Agenda for Europe" strategy. According to its Action 89 European Member States should ensure full interoperability of eGovernment services by overcoming organisational, technical, or semantic obstacles and by supporting Internet Protocol version 6 (IPv6).

The IPv6 transition process represents a complex issue that needs the involvement of all stakeholders. The most important are the following ones:

- **Content providers**, the web-site (and e-services) operators that must ensure IPv6 availability, meaning not only support on the side of the application and the server, but also a connection to the IPv6 infrastructure and listing at least one IPv6 record in DNS. As for services, it is also necessary to ensure the IPv6 support of e-mail servers in the form of MX records.
- Internet Service Providers (ISP) ensuring access to the Internet for government agencies, companies and home users as well. The task of these operators is to adapt all parts of the network in such a way that no action is required by users who need IPv6 support. For many operators, this step may require the replacement of certain network elements. The operators' IPv6 support can then be traced via network traffic implemented through this protocol.
- **Hardware manufacturers** that provide the link between the website and the end user of the Internet. Hardware manufacturers include both the modem/router manufacturers and the manufacturers of devices with integrated Internet access, such as mobile phone producers or M2M devices.
- **Government Institutions** (including policy and decision makers) whose interest should be to prevent the creation of a new Digital Divide made by the lack of IP addresses and thus by the impossibility to connect new users, as well as by the differences between the IPv4 and IPv6 address users.

There is no common approach to IPv6 support at the national level and the individual states and their governments support the introduction of this technology proportionally to the importance they assign to it. The level of importance can be tracked with the help of various tools, mainly:

- **Inclusion into official policies** representing a strong political commitment, based on which other measures including legislation can be further implemented.
- Legislative tools together with implementation documents (e.g. standards, methodical instructions etc.) offering, thanks to their relevance, an efficient tool with a direct impact on individual addressees.
- Inclusion of IPv6 support as an evaluating criterion into the best (the highest quality) web contests.

This paper focuses mainly on comparing IPv6 deployment in public administration in several European countries, on government policies in the Czech Republic and their evaluation, providing examples of best practices that inspire policy and decision makers. Moreover, its aim is to ensure enough IP addresses for new Internet users, both people and machines and thus support the Digital Agenda strategy goals and enable every European to be digital!

2 IPV6 POLICIES AND INCENTIVES IN THE CZECH REPUBLIC

2.1 IPv6 Policies in the Czech Republic

In support of the IPv6 deployment, the Czech Government has adopted a legislative measure aiming to expedite the IPv6 transition by government institutions in 2009 as one of the first in Europe. According to the Government Resolution Nr. 727/2009, all central government institutions such as ministries or various regulatory bodies should have ensured access to their eGovernment services via IPv4 and IPv6 as well starting on 1 January 2011. In order to reach this goal more easily, there was also an obligation to involve IPv6 support as a requirement for public tenders for new network infrastructure components.

In relation to the exhaustion of the IPv4 address blocs in Europe (14 September 2012) the Ministry of Industry and Trade, in the Czech Republic responsible for Internet Governance including IPv6, has decided to support the transition to a new internet protocol into the revision of the national strategy for the electronic communication area. In March 2013 the Czech Government has approved an updated version of this strategy named "Digital Czech 2.0". Besides the 4G auction, this strategy involves several chapters focused on Internet Governance Issues. From the IPv6 point of view, the government highlighted the need of public sector IPv6 transition and supported the extension of the Government Resolution from 2009.

Based on this strategy the Government adopted a new version of Government Resolution focused on IPv6 and newly on DNSSEC at the end of 2013. According to this resolution, all government institutions are obliged to involve IPv6 and DNSSEC requirement as a part of public tenders, not only on hardware components, but also for services, such as providing access to the Internet and data services. Omission of these conditions could lead to cancelling a public procurement. The government mail servers should support IPv6 from 1 March 2015. Regarding this issue, it was interesting to see the progress in IPv6 adoption by the Czech public administration, where a lot of government organisations do not support the new IP protocol on their mail servers and therefore they said that mail servers are not part of publicly available eGovernment services. The problem is, there is no official definition of eGovernment Resolution.

The last policy measure so far was done by the Czech Telecommunication Office (CTU), the national telecom regulator, which adopted the "*General rules and recommendations for the use of data traffic management in the provision of Internet access service*". According to these guidelines, "the access to the Internet" means a service enabling to connect all end user points connected via IPv4 or IPv6. This definition is related to the net neutrality and the CTU clearly states that net neutrality means also a freedom to choose an Internet protocol – IPv4 or IPv6 and that the same rights are granted for IPv4 and IPv6 users as well.

2.2 IPv6 incentives in the Czech Republic

In order to support not only government but all stakeholders, CZ.NIC, a national domain name registry, provides various incentives for adopting IPv6.

In the area of supporting public administration and goals set up by Government Resolutions, our education centre CZ.NIC Academy (http://akademie.nic.cz) provides **training for public administration** free of charge – practical training focused on IPv6 implementation as well as non-technical course focused on introduction to IPv6 and DNSSEC, fulfilment of the requirements set up by the Government Resolution and involvement of these technologies in public tenders. This training is offered also for other stakeholders involved in IPv6 transition both from public and private sector such as registrars, webhosting companies and other IT vendors.

Since 2012, the CZ.NIC Association carries out regular monitoring of the support of IPv6 on government websites and since 2013, within the EU co-funded GEN6 project (www.gen6-project.eu), this monitoring expanded to European benchmarking.

The example of best practice representing a low-cost but a very effective measure leading to increasing IPv6, is to involve IPv6 support as an evaluation criterion into the contest for the best website. In the Czech Republic, we put this requirement in the Golden Crest Award for the best municipality website and we recorded a big impact of this quite a small measure in self-government websites, which are, according to the Constitution, not affected by Government Resolutions.

Finally, it is necessary to take into account the role of registrars, representing a key element in offering IPv6 as a part of their services. Within the registrar certification (similarly as with hotel stars) we evaluate also the offer of IPv6. To support end users' decision-making, the maintainer of the national domain may for example publish a list of registrars using the new technologies. For the Czech national domain .cz, such a list can be found on the website of the CZ.NIC Association (www.nic.cz).

2.3 Impact assessment of IPv6 policies and measures in the Czech Republic

To evaluate the impact of activities aimed at IPv6 support, the most verifiable method of assessing the impact and effectiveness is represented by the measures a statistical comparison monitoring the development of IPv6 support at different types of entities over time – public administration (with special attention to and separating institutions affected by the Government Resolutions). In the Czech Republic such a comparison can be done due to the research organised by the CZ.NIC Association in cooperation with the Ministry of Industry and Trade within the European GEN6 project (see Table 1).

	Web servers		Name servers		Mail servers	
	7/2012	3/2014	7/2012	3/2014	7/2012	3/2014
Ministries	35.7 %	57.1%	64.3 %	64.3 %	35.7 %	57.1 %
Other government bodies	50.0 %	81.8 %	58.3 %	72.7 %	33.3 %	45.5 %
Regional governments	14.3 %	15.4 %	64.3 %	69.2 %	14.3 %	23.1 %
Municipalities	7.3 %	31.1 %	43.9 %	59.2 %	2.9 %	7.3 %
Average for .cz domain	13.5 %	20.2 %	49.8 %	55.7 %	9.6 %	15.1 %

Table 1: Comparison of IPv6 implementation at chosen entities in the Czech Republic

Source: CZ.NIC Association (http://stats.nic.cz) and GEN6 project (www.gen6-project.eu)

On the one hand, the aforementioned results show that not all organisations (ministries and other governmental bodies) comply with the obligations arising from the Government Resolution, on the other hand the long-term measurement clearly demonstrates not only the increasing support in public administration during the last one and a half years, but also the huge difference between organisations affected by the Government Resolution (first two rows) and others, including the national domain average. In case of municipalities, we can see a significant improvement especially in web and mail servers. Such a progress results also from the IPv6 support included into the Golden Crest Award in 2013 and 2014, as many municipalities wanted to increase their chance to win.

3 IPV6 BENCHMARKING IN EUROPEAN PUBLIC ADMINISTRATION

Based on the experience of measuring the Czech public administration's IPv6 support this monitoring expanded into European benchmarking, currently containing 10 countries: the Czech Republic, Estonia, Germany, Greece, Luxembourg, the Netherlands, Slovakia, Slovenia, Spain and Turkey.

In order to compare the implementation and adoption of IPv6 in various countries a common methodology reflecting various governance models across Europe was developed. Within this methodology, URLs representing government (including self-government) websites and eGovernment services are divided into three main groups. The first group represents the national or federal level, the second focuses on the regional level and the last one involves the municipal level. Within the technical check of IPv6 support at content providers, it is important to focus on web servers (AAAA records), DNS servers (NS records) and mail servers (MX records). Currently, this in-depth benchmarking study involves 2 407 websites, 400 on central level, 137 on regional level and 1 870 on local level, that are checked on regular basis (once a month), see Figure 1.

The European comparison in Figure 2 shows a positive impact of legislative and other measures aimed at IPv6 support in the Czech Republic, thus making it one of the leaders in this field. An interesting perspective is provided by the results of the IPv6 Observatory study (www.ipv6-observatory.eu), monitoring the IPv6 support at the 500 most visited pages in a given country according to the Alexa.com server.



Figure 1: Public administration preparedness to IPv6 in selected countries

Source: CZ.NIC Association (http://stats.nic.cz) and GEN6 project (www.gen6-project.eu)



Figure 2: Websites with AAAA record in European countries

Source: IPv6 Observatory (http://www.ipv6-observatory.eu)

4 CONCLUSIONS

Given the near depletion of the IPv4 address blocs the new version of Internet Protocol version 6 (IPv6) represents an answer to ensure the development of information society with ever-increasing number of users and devices connecting to the Internet. The IPv6 implementation thus becomes not only a technical issue, but is also connected with social impacts and policies. It is obvious that without a wide support for IPv6 it will neither be possible to reach the goals set by the Digital Agenda for Europe nor to ensure that every European becomes digital! Insufficient IPv6 support can too soon create a new Digital Divide problem, between IPv4 users and IPv6 addresses, making it impossible to access content available only via the old version of Internet protocol.

IPv6 support is connected with the question of technology neutrality and free choice of Internet protocol for end users, e.g. for security reasons.

For the reasons stated above, the issue of IPv6 support should not stay disregarded by policy and decision makers and should be taken into account when creating and implementing government policies at all levels – national, regional and local as well. The Czech experience shows that among the most efficient tools are legislative ones, especially the following ones:

- An obligation to support IPv6 at least for public administration bodies, e.g. in the form of standard or government decree.
- An obligation to include IPv6 support as one of the conditions for purchase of relevant technologies (esp. network devices such as routers) and services (mainly web hosting) paid by public funds. A timely inclusion of IPv6 support into procurement may not influence the final price, on the contrary, it may save on future investment connected with technology upgrade.

A suitable tool to follow up on the fulfilment of obligations arising from the relevant legislation is regular monitoring (benchmarking), its effectiveness and other uses can be enhanced by publishing the data gained in the form of open data.

Turning Data into Value

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Structured Abstract

Purpose & Scope

Big Data lets emerge a large number of applications according where they come from: 1) legacy IT systems, 2) internet usages like search functions or social networks and 3) sensors, which are taking an increasing and critical role for smart cities.

Design/methodology/approach

In spite of differences in each case, the core issues are quite similar: the volume, the flow, the complexity, the analysis capacities, the privacy and the security.

Results/findings

Turning Data into value requests to answer to all these key points, which present the parts of the same value chain.

Conclusions

Data becomes a key valuable asset in the competitive landscape for private companies. At the same time, it appears as a key sharable asset for citizens when it refers to public infrastructure and services. Big Data could force redesigning IT systems and applications. It is a challenge for ICT players who could have to face disruptive new entrants.

Keywords: Big Data, applications, value chain, citizens, services, re-design.

Tools for Smart Cities

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Structured Abstract

Purpose & Scope:

The gap between future internet research, and the needs of cities calls for a new approach, so cities can influence the development of new digital services. Tools for smart cities help cities develop interoperable pilots around open data, and shared tools and technology platforms.

Design/methodology/approach

CitySDK, Commons 4 EU, OpenCities, SMARTiP, Apps for Europe and Citadel are projects that have developed a collaborative approach to European smart city pilots, through shared platforms, networks, methodologies and use of resources, that are then transferable to other cities.

Results/findings

Over 20 smart cities have begun collaborating to develop a range of apps and services, and to engage with a European-wide development community.

Conclusions

Cities have to move beyond pilots to developing interoperable tools that can provide access to innovation communities in order to influence and produce the development of new digital services.

Keywords: open data, smart cities, tools, innovation, interoperability

OpenTransportNet: The Future of Georeferenced Open Data

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Structured Abstract

Purpose & Scope

OpenTransportNet (OTN) is a pioneering new European project that addresses the huge potential of both public Open Data and Geographic Information (GI) in a manner that stimulates innovation and business activities by specifically focusing on making GI Data more accessible and usable for business innovators and public sector stakeholders alike.

Design/methodology/approach

OTN creates a pan-European network of hubs that aggregate, harmonise and visualise transportrelated Open GI data from European, national and local levels in a manner that drives the rapid creation of innovative new applications and services.

Results/findings

To date, major projects in GI including INSPIRE and Copernicus has focussed on developing standard frameworks for data while Open Data projects have concentrated on finding ways to open and use local data. However, the true innovative potential of mashing up Open Data and GI to create vibrant, attractive new applications has, as yet, been underdeveloped.

Conclusions

OTN will strengthen the emergence of a new, cross-border innovation economy in Europe by unlocking the combined power of data from a range of geographic levels to target real world problems where they occur most – at the local level where citizens live and work.

Keywords: Geographic, Data, Transportation, Open, Project, Innovation

Benefits in the adoption of ICT tools for tourism in remote areas: DANTE project

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Structured Abstract

Purpose & Scope

Tourism is a major economic sector which indirectly generates more than 10 % of EU GDP and employs about 12 % of the labour force. The digital economy is said to grow at seven times the rate of the rest of the economy. The DANTE project (Digital Agenda for New Tourism Approach in European Rural and Mountain Areas – INTERREG IVC) aims to promote a new regional policy approach to designing a knowledge-based plan for the tourism sector for rural and mountain areas.

Design/methodology/approach

The project uses the lessons learnt from innovative good practices that demonstrate the benefits of Information Society for competitiveness of the tourism sector in rural and mountain areas. Exchange of experiences and transferability of the good practices among the pilot actions allows for the development of implementation plans to address local tourism challenges using ICT tools and methodologies. The exchange of the knowledge gained by more advanced regions in the development of regional ICT projects for rural and mountain:

- supports European Regional and Local Governments and Agencies to define an effective plan able to address the challenges of the tourism economy in their rural and mountain areas, thanks to the adoption of ICT tools and methodologies;
- demonstrates the feasibility of the transfer process able to support the regional and local authorities in the design of their strategies, thus ensuring the sustainability of the Implementation Plans;
- aims at spreading the benefits achieved among the consortium to external organizations, by addressing all the relevant stakeholders in Europe, from the policy and decision makers to the tourism operators and the mountain and rural associations.

Results/findings

The objective of DANTE is to improve the effectiveness of regional policies of innovation by enhancing the role of ICT in tourism industry in rural and mountain areas.

Conclusions

DANTE is a concrete way to apply EC Communications, as COM 2010-352 final "Tourism is an economic activity capable of generating growth and employment in the EU, while

contributing to development and economic and social integration, particularly of rural and mountain areas...". It defines a new framework to share experiences and increase the territories competitiveness with a coordinated approach. The final policy recommendations and regional implementation strategies for digital tourism in remote areas will contribute to the regional development of a Tourism Digital Agenda in partners' territories and beyond.

Keywords: Tourism, ICT, tourism booking system, rural, mountain, bottom-up approach

CASA – Regions for Smart Living

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Structured Abstract

Purpose & Scope

The Consortium for Assistive Solutions Adoption (CASA) project addresses the development of regional policy and exchange of knowledge around the up-scaling of innovative ICT and services for independent living. CASA is part of the Community of Regions for Assisted Living (Coral), through which a few dozen European regional governments collaborate. With the Coral network they build a sustainable connection between their innovation clusters in the field of Ambient Assisted Living and Active & Healthy Ageing.

Design/methodology/approach

In the CASA project 14 participating organizations from 13 European regions interact on the topic of policy development to give a boost to the implementation of AAL solutions. We do that among other activities through study visits, exchange of good practices, secondments and conferences.

The study visits in the participating regions have concentrated on several topics including monitoring, safety and self-management, social interaction, chronic diseases, healthy lifestyle and rehabilitation.

Results/findings

The project is still on-going. Two final study visits will be held in the period March-June 2014. In the same period a second set of secondments will be carried out, as well as two Knowledge Transfer Conferences in Poland and Romania.

A midterm evaluation will be carried out within the next months. This will give a first clear and objective overview of what has been achieved so far.

The global results will be presented during a final event in October 2014, marking the end of the project.

Conclusions

The main focus will be on a presentation of the CASA project and on the added value of cooperation and exchange of knowledge and best practices between regions in the field of AAL.

Keywords: Ambient Assisted Living, INTERREG IVC, Active Ageing, policy development

Opening Digital Agenda

Open Government Data Will Bring Change

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Structured Abstract

Purpose & Scope

Providing public information is an important element and in that line the development of Open Government Data is a top current issue. A number of institutions provide data creating an ample demand pull. The categories of data involved comprise of geographical data, micro-census, regulations, traffic data etc. On these bases successful applications are created by agencies in cooperation with private enterprises.

Design/methodology/approach

A systemic approach to Open Government Data and the impact on government and citizens.

Results/findings

Impacts of Open Government Data are quite manifold, the use of applications range from improving transparency to heightening quality of life. Public value is created in several ways, so by improving accountability and transparency as well as efficiency and effectiveness. These features are mirrored in the way government is built. Open Government Data certainly provides a way to substantially improve government.

Conclusions

New trends are not easy to evaluate; however, impact on the behaviour of citizens and public servants is evident. Thus, Open Government Data will lead to substantial changes.

Keywords: Open Government Data, E-Government, Public Governance

1 INTRODUCTION

The state acts as a driver in the Knowledge Society and spurs a number of activities that provide leverage to progress. The state, thus, plays different roles including a catalyst role, and perhaps a facilitator, a matchmaker for enterprises roles etc. The state fosters infrastructure supportive of Knowledge. This includes building a digital infrastructure, establishing precompetitive consortia, building hubs and clusters. Furthermore, the State promotes Knowledge in quite specific way when exerting the core capability for providing public information. Open Government Data is one kind of public information. It is important to bear in mind that Government is both, a major producer of Knowledge as well as a major user of Knowledge.

2 CENTRAL ISSUES

Government has to keep up with the Knowledge Society as governing needs a lot of self-reflection. Governing entails many information sensitive tasks and Knowledge is the quintessence making the system running. In some way reforming Government is similar to changing the distribution of Knowledge. Basically, Knowledge exerts steering power which exhibits the central role of Knowledge in Government. This fact directs to further subject matters, so Open Government Data on one hand and the integration of such developments in Electronic Government. The issue "Knowledge and Government" is detailed in our earlier publications [6, 7]. Literature for E-Government is given paradigmatically with citing some latest conference proceedings EGOV and EGOVIS/EDEM [3, 4]. Further a widely used US Reader [2] is given as reference. For the topic of Open Government Data we refer to [1, 5].

3 KNOWLEDGE IN GOVERNMENT

Nearly all administrative tasks are informational in nature, especially the case of those tasks that are closely related to the core functions of Government. Work in Government means Knowledge work and officials are Knowledge workers par excellence. The scope of Knowledge in Government can be regarded as rather broad. It comprises building administrative repositories, sustaining decisions, enhancement of processes, assisting planning processes and improving citizen participation. Correspondingly the carriers of Knowledge are manifold, so documents, reports, procedures, legal regulations, databases and workflow systems. Additional, individual persons and groups of persons, organisational structures and cultures as well as social and cultural work practices serve as knowledge carriers. An abundance of Knowledge resides in long-known procedures and existing data collections.

Concerning Knowledge types one can find a high distinctiveness. So, regarding the layers of Government there is governance involved on strategic-political layer while administrative bodies on the tactical layer. Other distinctions concern traditional registers. These include basic items such as persons and land, then going to refinements as real estate, property rights, entitlements, and a plenitude of geographical data. Further repositories concern income tax, corporate tax, tariffs, duties, and excise. A particular category is given with legal data due to the fact that norms are the standard vehicle of communication within Government. Then, there is a lot of so called managerial information involved in Government. The expertise of administrators has to be wide-ranging. Thus officials have to know how to apply the general Knowledge to particular cases and have to consider how their work may be embedded in the respective administrative body. Their deliberation has to include several concerns on the modalities of administrative measures.

4 OPENING GOVERNMENT DATA

Providing public information is a central charge of Government and so Open Government Data is a top issue. A number of institutions provide data so creating an ample demand pull. The categories of data involved comprise geographical data, micro-census, regulations, traffic data etc. On this basis successful applications are created in cooperation of agencies with private enterprises. Many commercial projects thrive with the release of Open Government Data. Thus Open Government Data heighten the quality of life by useful applications.

Open Government Data create public value in several ways. Public value is linked to individual and societal interests. Initially, there is an intrinsic value in Government itself. Then value is created by improving openness, transparency and accountability as well as efficiency and effectiveness. According to a broad consensus good governance is enhanced; hence several marks of good governance are affected. Here one could list participation, consensus reaching, accountability and responsiveness. One has to be aware that transparency has several aspects such as documents, benchmarks, processes and meetings. Concerning information quality there is not much dispute, as most data created in administration are rather "hard" – just as to mention taxation figures or the wording of norms.

5 IMPROVING THE COMMUNICATION COMPETENCE

Open Government Data provides a way to improve the general administrative part of Government. The legal and administrative domain knowledge is widened enabling internal improvements. For the impact of Open Government Data on the general administrative realm one can find manifold examples: feedback from and an increased contact with the public, a better cross agency cooperation and more ways of good practice exchange. Also the benefits going to administrative work. An advantage not to forget is the improvement of self-reflection within administrations as intelligence organizations.

Open Government Data create advantages for the greater public. A good number of the various commercially produced apps are fervently accepted. In addition, it is noteworthy to state, that on occasion contributions are generated by the clients themselves. In diverse ways citizens help other citizens so by giving hints how to deal with special administrative problems. Sometimes amateurs prove their skills in re-writing public information which may become better understandable as the official jargon used for. A particular kind of contribution concerns citizens conferring ratings of public service. This means valuable feedback and delivers an example how the control loop of governance works.

6 SUPPORTING CITIZEN PARTICIPATION

A major influence of Open Government Data concerns citizen participation. Supporting e-Participation is a hot topic as Government has the intention to support the formation of a democratic culture. For this aim participation develops and implements new forms of involvement in policy making. The range of communication is broad and involves many persons, citizens, public authorities, elected representatives and experts. The forms are diverse so filling a wide array, with informing and consulting as low range and involvement, collaboration and empowerment as high level. The foci of e-Participation have changed. A decade ago e-Participation had a heavy focus on e-Voting and transparency. Several projects were using the web for voting, others were intended to promote transparency. In contrary to such early concerns, now in latest years new focal points have come in. Some recent projects show a direct way to the top, as to name e-Petition which gives communication to Government offices. Emphasis is laid on "active participation" which stresses supporting all forms of community development. A particular point is the use of Social Media. This means not only usage of new technological developments; more it stands for an evolution of a different physical and a new virtual world. Examples for applications of Social Media in e-Participation are numerous: citizen involvement, city planning, petitions, campaigning, monitoring and law enforcement.

The ultimate objective of e-Participation is to improve public responsiveness. So the expertise of citizens' gets quasi tapped and flows in the procedure of decision making. The general goal is fostering democratic participation and citizenship as well as heightening institutional transparency and openness. Remarkable is a close connection between transparency and participation in the form a mutual promotion. Transparency means empowerment by giving relevant information. Empowerment has several directions. So one will find community empowerment grounded in collective actions; then one finds individual empowerment enabling personal choices. A culture of consultation and dialogue emerges that shapes political customs and brings new ways of community learning.

7 ENHANCING NEGOTIATION AND DECISION MAKING

A crucial point is sustaining processes of negotiation and group decisions. Such activities are central for citizen participation and for legislative and administrative work. Especially for the higher ranks of administrations cooperative decision making is a big part of their occupation. Both, negotiations and policy making, represent a particular case of administrative processes, namely "weakly-structured processes." There are several instruments that offer help when it comes to sustaining such processes. Supporting the communication among citizens can be sustained with widespread available tools such as to mention mailing lists, discussion fora and special portals. There is a paradox effect named the long tail. If one regards costs vs. usage the outcome shows a long tail of low-cost instruments which exert considerable influence.

In contrary, there are other applications which need more advanced tools. One example is the meeting process itself and the sustaining of various sub tasks which are associated with meetings. The list of such subtasks is long and includes synchronization of communications, agenda setting, problem structuring, evaluation of solutions and facilitation. Accordingly, appropriate working environments bring together both modes of work: weakly structured work on one hand and phases of strictly structured cooperation on the other hand.

City planning is a further instance demanding sophisticated tools. In a typical example the city engages users in making decisions on budget allocations so for recreational spaces. Such virtual budget decisions need sophisticated tools as to name simulation and visualization.

8 CONCLUSIONS

Government has become a meaningful agent of transformation and development. Generally, competition is growing among countries, companies and people – so Knowledge is hailed as a competitive advantage. When then feeling of pressure from competition increases, then in

addition to Knowledge also Innovation comes in the limelight. Innovation is seen as a panacea – quasi as a key to wealth. Both, Electronic Government and Open Government, exert a powerful impact as a source of Knowledge and as a catalyst for Innovation.

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Open Data and re-use of public information through regional co-operation: HOMER project

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Structured Abstract

Purpose & Scope

The HOMER project (www.homerproject.eu), funded by MED programme, aims to unlock the potential of Public Sector Information (PSI) in European Mediterranean regions establishing a common technological framework and exploring the possible re-use of Open Data (OD). Open Government, transparency and participatory democracy are promoted through participation of citizens in the co-elaboration of new solutions, projects and scenarios based on OD.

Design/methodology/approach

Participating regions select one specific strategic subject and coordinate stakeholder workshops with the purpose of: enhancing citizens' creativity and taking advantage of it for creating innovative initiatives; stimulating the re-use of datasets; and creating new applications, tools and/or services based on OD.

Results/findings

The goals of the project are raising awareness about potential of OD for citizens, promoting active "participation" in political life, developing new scenarios and possible re-use of OD.

Conclusions

HOMER shows how PSI reuse can open new possibilities for citizens to participate to the public sphere, and how, thanks to OD, the citizens may contribute to the improvement of living conditions in their regions.

Keywords: Open Data, PSI reuse, e-democracy, e-participation, regional co-operation, transparency

Open-DAI project – a new model for opening Public Authority data silos

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Structured Abstract

Purpose & Scope

The Open-DAI project proposes a unique approach to Open Data: without moving the data from the data center of the Public Authority (PA), it enables the opening of important pieces of information that reside in the Administration silos at no additional cost for legacy applications. This approach can be coupled with the integration of an open data portal and the possibility to publish data, also in non-open data approach, just to selected users such as another public administration fostering integration and correlation between datasets.

Design/methodology/approach

The Open-DAI project developed a platform, deployed on the cloud, composed of state of the art open source tools, to reach the described goal and is now delivering the needed documentation to disseminate the result to a wider audience.

Results/findings

The open data approach needs to be supported by the possibility to manage data in a protected and reserved publishing form, because this feature helps the PA to take the step towards the publishing of the entire dataset that could be composed of a mixed information that could not in its whole be published as plain open data.

Having a tool that can be offered as a service to the end user to enable it to publish data on its own, giving assurance that the data stays in the owner data center remove another obstacle and support the return of investment of the Administration in its own IT.

Conclusions

There is a new approach to open data, mixed with closed publishing, to reach the funding target of opening data residing in the silos of public administrations towards a wider use.

Keywords: open data, cloud, breaking silos

1 INTRODUCTION

Public Administrations (PA) have spent a lot of money and resources to build its IT systems. Since PA are divided into different departments, that have the task of managing specific aspects of public goods, these IT systems represent silos of information that do not interact with each other. These silos are recognized as sources of valuable information even beyond their specific tasks.

The European Directive [1] on the re-use of Public Sector Information (PSI) encourages EU member states to make as much PSI available for re-use as possible. The IT Cloud environment is seen as an opportunity to help PA follow this Directive in opening data to implement new services or to migrate old ones.

PA's IT systems could just have reached the maturity and stability point where PA's users can use them without bugs; the ROI of the PA's IT systems could not be achieved yet. Proposing to PA to hastily migrate its own IT systems to a cloud environment may not be the wisest thing to do.

2 OPEN-DAI AS A SOLUTION

Open-DAI (Open Data Architectures & Infrastructures of European Public Administrations) project [2] proposes to leave the data in the silos where it resides, without touching the legacy application or requiring expensive changes. It connects the data and just exposes data services by virtualizing the information in the cloud. Data services can be in the form of REST¹, API², SOAP³ web services, or even as geographic protocols. This is an important aspect of the Open-DAI model: investment of PA is protected, no endless re-engineering of old applications is required, so there is no need to spend money on recreating the same solution that functioned well enough previously, and newly just resides outside of the PA.



The access to the silos is made through secure encrypted connection from the cloud to the data centre, but no data is brought onto the cloud, a new model of it is created, so it is be possible to aggregate data differently (a virtual database), it will be possible to exclude data that is private or meaningful just for the legacy application; just this model is deployed in the cloud; this model represents a façade of the data. Queries from data services are made on this model and translated on the way towards the old database and the answer is thus assembled in the cloud and sent to the caller. Therefore, nothing stays in the cloud, but the cloud's processing

¹ Representational state transfer is an architectural style developed by W3C also applied to development of web services.

² An application programming interface is a specification of remote calls exposed to the end user.

³ The acronym of Simple Object Access Protocol is a protocol specification for exchanging structured information in the implementation of Web Services in computer networks.

power is used to execute the needed transformations. All the APIs generated are protected, so that the PA can decide to publish some for restricted use of other public administrations, thus fostering reuse and integration or correlation of data; the PA can also decide to publish them openly so that a third party, whether they are SMEs or individuals, can utilize this information to do business or research.

APIs are also monitored by the Open-DAI platform and the PA will know who accesses them and from where. This is possible thanks to automatically generated reports. The PA can request users to subscribe and it is also possible to apply levels of service to the API, making it possible to limit the number of calls that users can issue to the data service.

This, on the one hand, protects the legacy silos in case it resides on not performing machines, on the other, opens up new revenue possibilities for the PA: if opening data with a basic level of service, allowing one call per minute, could be considered the standard and minimal service that PA has to offer to respect free public publishing, allowing for higher service levels could require the payment of a fee. APIs are published on a web store that can enforce those service levels, and offer those features. The Open-DAI project delivers the entire platform that the PA can install on premise or on the cloud. All the software components composing the platform are automatically installed by the Open-DAI automatic installation system (at the moment just for the CloudStack cloud environment). The users will have to develop and deploy their own virtual databases into the Open-DAI system and will have to publish the API in the API. These are simple operations that can be done by resources with basic knowledge of the Open-DAI components and of the legacy dataset.

The Open-DAI project is also developing integration with the HOMER project (Harmonising Open Data in the Mediterranean through better access and reuse of PSI) so that the API's store will be able to publish the meta-data of the APIs in a Comprehensive Knowledge Archive Network compliant protocol enabling the usage of the HOMER's federated search index allowing the APIs to be discovered in a multilingual context.

3 CONCLUSION

To demonstrate the usage of the Open-DAI platform the project also released some pilots based on the published API. Hackatons promoted by the project demonstrated that data within the silos can generate new and unexpected applications. The software components used in the project represent the best of breeds in the open source ecosystem. All the sources developed by the project are released with an open source licence and available in the github repository [3] (https://github.com/open-dai).

The Open-DAI project is a CIP-ICT-PSP-2011-5 project and is coordinated by CSI-Piemonte, and includes partners: BDIGITAL, SAMPAS, Netport, Regione Piemonte, Karlsham Municipality, Ordu Municipality, Barcelona Municipality, Lleida Municipality, Politecnico di Torino, and AGID.

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Public contracts and their impact on stable business environment

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Structured Abstract

Purpose & Scope

The volume of public contracts constitutes 13 percent of Czech GDP. An appropriate use of public procurement by the state authorities, thus, may contribute to a stable business environment. Nevertheless, from the private sector point of view it is questionable if the procedure of dividing EUR 18bn on public contracts every year is transparent enough to attract a broader pool of bidders, thus generating enough pressure to reduce price and improve public finance management.

Design/methodology/approach

Detailed monitoring of public contracts and procurement strategies over the course of the last two years has been pursued. This has been consulted with public procurement experts and subscribers to the daily news GovDaily ensuring evaluation feedback from both sides of the procurement procedure, i.e. bidders and contracting authorities.

Results/findings

Public procurement is far from being transparent as (1) the authorities tend to meet the minimum legal requirements only, (2) relevant information is usually scattered, provided in a rather complicated way and difficult to obtain, and (3) the state tends to change its procurement strategies. Given their complexity and a lack of transparency, the efficiency of the ICT contracts worth EUR 602m annually is difficult to assess. With a limited access to the information regarding the world of public contracts and due to ever changing procurement rules, SME's hesitate to bid for the public contracts with the consequence of putting only a little pressure on price and sustainability of spending financial resources.

Conclusions

In order to increase the pool of ICT companies interested in public contracts, more user-friendly information must be provided. As the state has been hesitating to take the lead in providing relevant services, the floor has been left for private companies. Moreover, in order to open the tenders to a wider pool of potential bidders, the authorities should better fulfil the goals set by state strategies.

Keywords: public procurement, business environment, ICT contracts, good governance
Innovation, citizens and government policies

The FUPOL Policy Lifecycle Model and related Technologies in Practice

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Structured Abstract

Purpose & Scope

The purpose is to outline the FUPOL model, an advanced e-governance and e-participation approach as well as its application in various pilot cities worldwide. Some experiences gained during pilot implementation in Africa, and Eastern and Western Europe are illustrated.

Design/methodology/approach

The FUPOL Policy Model is provides the integration in a seamless set of main tasks and subtasks. It links various technical features in the domain of policy modelling to guarantee the support of the whole policy lifecycle.

Results/findings

The results achieved so far demonstrate that it is feasible to support the policy design and implementation process in different scenarios and different political settings with the technology envisaged. It has also been acknowledged that local support over a longer period is required to make such an approach successful.

Conclusions

The methodolgy as well as the technical features worked out by the FUPOL project have been succesfully demonstrated in practice. In a next step the exploitation will be set up based on worldwide partner network.

Keywords: *FUPOL*, *e*-*Governance*, *e*-*Participation*, *Policy Lifecycle*, *Policy Modelling*, 174

1 INTRODUCTION

A recent approach to define a policy process is to consider the use of ICT-tools in the entire process. In particular the involvement of citizens and their opinions can be supported in a more comfortable way by electronic means, because they allow a quick interaction between citizens and governments. In this paper we describe a new model, related technologies and their application in practice.

2 POLICY LIFECYCLE MODELS AND ICT SUPPORT

2.1 History

The well-known definition of Macintosh [1] and published model is proposed by the OECD to reinforce e-Democracy. Both processes define a five-stage PM-process: (1) Agenda Setting, (2) Analysis, (3) Policy Creation, (4) Policy Implementation, and (5) Policy Monitoring. Next to these established process definitions, there are very similar definitions with a deviation in the number of stages. They address the same issues, similar to the parallel existing process definition for the conventional PM-processes. The process definition of Mashinini [2] consists of four phases. His model combines the first two stages of Agenda Setting and Analysis in one stage. Another policy lifecycle process definition was proposed by the World Bank [3]. It describes a more structured process with an assessing and coordination responsibility within the governments. However all of the mentioned models do not address the use of ICT in the whole process, specifically which ICT features are required to support the process.

2.2 The FUPOL Model

In order to address the linkage between policy process and ICT, a new model [4] has been developed in the FUPOL project [5]. It includes a comprehensive, integrated and detailed breakdown of tasks and links them to ICT technologies and benefits. The novel FUPOL Policy Lifecycle is characterized by its six lifecycle stages, main-tasks and subtasks which are combined with technical features.

The various FUPOL features and technologies can be used in several subtasks of the policy process are below.

- Data Integration and Storage
- Unified Integrated User Interface
- Policy Indicator Dashboard
- Social network aggregation and single window display
- Hot Topic Sensing & Topic Summarization
- Community Feedback Platform
- Visualization of statistical data
- Visual social data analysis
- Knowledge database and visualization
- Outgoing Multichannel Social Media Single Window Messaging
- Opinion Maps

- Simulation and impact visualization
- Visual Fuzzy Cognitive Maps

The technologies have been described in detail in previous publications [6], [7].

3 PILOTING OF THE MODEL AND TECHNOLOGIES

3.1 Introduction

The model and related technologies are currently piloted in six different countries: UK, Cyprus, China, Macedonia, Croatia and Kenya. The focus of the demonstrator domains was chosen in a way that they have not already been covered by other research projects to provide a maximum of added value to citizens and policy makers. They were also selected according to complexity, means the domains cover more than one single (easy) policy topic.

Other criteria were:

- Potential of re-usability by other cities in and outside Europe, including developing countries
- European and non-European dimension of policies
- "Quick Win": Potential to deliver value for citizens within the lifetime of the project A selection of the results is described below:

3.2 Barnsley

3.2.1 Background

Barnsley is a town in South Yorkshire, England. It is surrounded by several smaller settlements which together form the Metropolitan Borough of Barnsley, of which Barnsley is the largest and the administrative centre. The metropolitan borough has a population of 231,900. As far as citizen consultation is concerned, the Public Administration in the UK is not looking at its first steps in consultation. This is a long-established process in Planning, which has evolved since 1947. Methods are already available to scrutinise how successful particular engagement strategies have been. This means that the pilot is building on existing experience and embedded in statutory processes.

3.2.2 Policy Domain

The policy domain is "Land Use- focussing on its future use for employment". For the initial piloting, ahead of the main consultations on the overall change of the use of land in the Borough which are still to be launched, Barnsley looked at the most prominent planning application passing through the system at the time of the trials. As there were no large industrial or commercial applications being processed at the time, this in fact was for a large housing application on a "green-field site" in the Royston area of Barnsley, selected for its potential in terms of generating interest amongst the public, both for and against proposals made, and being also of political interest.

3.2.3 Current status and lessons learned so far

Essentially the first piloting was concerned with the implementation of the previous landuse policy, as a planning application for housing went through the system. The pilot sought to familiarise the planning and communication teams with the implementation of the FUPOL tools and to consider the input from the citizens as complimentary to their existing methods at this stage. It was also an exercise in building confidence and familiarity, not just with officers, but also with the politicians who will drive the creation of the new "Land–use Policy". The individual aspects of FUPOL were as important as their collective power at this stage of the learning process.

Clearly, the timing of the testing had to coincide with the plan being taken to a committee for determination. Activities started in September 2013 with an awareness campaign. It was found imperative to have political support from the very beginning, given the sensitivity of both "information gathering" and of the actual planning application, and whilst any views from citizens could be treated as if they had arrived via the traditional methods, the main purpose was to test the system. It is certainly not beneficial to projects such as FUPOL, to have to take place in the climate of mistrust created by the numerous "breach of privacy" scandals prominent in the British press and so much effort will need to go into allaying these fears ahead of the main trials, when the focus will indeed change from the technology to the citizen's opinions.

Activities were carried out according to the training manuals with access being provided through a Facebook page and a blog, with a good cross-section of information sources ranging from press to radio and the variety of social media in order to provide the raw material capable of being analysed and made of value to the communicators and disseminators. The emphasis at this stage being to familiarise the campaign team with the tools and to show they work, rather than on their actual contribution to the policy making and implementation processes at this stage of the project. Communication plans were created and rehearsed and a feed-back process through interview, focus groups and questionnaires helped us evaluate this preliminary testing phase. It would be fair to say that there was enthusiasm all round and that the expectations for FUPOL in the real trials to follow are very high.

The most important feedback given did not relate to the FUPOL process as a whole, but to technical and design improvements when the tools were put in the hands of those expected to utilise them on a day-to-day basis and who are familiar with existing ways of carrying out policy making and communications in the Land Planning process.

Examples of this kind of dialogue with the designers during the first phase included:

- Feedback being given on issues such as the time-scales related to when a topic is deemed to be hot, patterns in various media where a topic may be hot at any time, locations where it is hot and what are the patterns occurring, drilling down into sub-sets of data etc.
- Suggestions for improving the campaign "dashboard"
- Issues concerning import and export of data.

3.3 Mtwapa (Kenya)

3.3.1 Background

It is the unique feature of this pilot that the environment is a slum area. Mtwapa is located in Kenya's Kilifi County in the vicinity of Mombasa City. Its population was estimated to be about 50,000 people and half of them live in the informal settlements and slums. The pilot in Mtwapa is part of a slum upgrading project managed by UN-HABITAT. The PSUP Mtwapa slum upgrading project aims at improving living standards of slum dwellers in Mtwapa by addressing the five depravations of slums namely the lack of access to safe drinking water, access to improved sanitation, overcrowding, permanency of living structures, and security of tenure.

The reasons for choosing Mtwapa in Kenya as a pilot were:

- 1) An initial evaluation has revealed that Kenya is an ideal testing ground for new technologies, because the mobile penetration is very high. Kenya has 40,7 mil. inhabitants and already 31,3 Mio mobile subscribers.
- 2) High speed internet is available almost everywhere in the country.
- Kenya is well known for very innovative internet and mobile services like M-PESA (mobile payment). M-PESA is currently the most developed mobile payment system in the world with a large share of the Kenyan population actually using it.

3.3.2 Policy Domain

The policy domain is slum rehabilitation and includes mainly public infrastructure such as for example roads or sanitation facilities.

3.3.3 Current status and lessons learned so far

The technical environment has been set up featuring a Facebook page and a blog as frontend. Likewise a lot of information has been collected from social media and newspapers through the FUPOL core platform to get a better picture of the local challenges.

The local community has been informed about the use of electronic media in the policy modelling and decision making process. Various meetings with the local government and community elders have been held to ensure acceptance. The community was very positive towards the new technology and expects a better communication with decision makers to express their needs.

The most important lessons learned are related to the "social" framework.

- 1) It is required to have "Community Mobilizers" assisting those people, which are not familiar with ICT. This enables also them to express their opinion electronically.
- 2) Postings should be moderated and adequate processes must be in place to respond to questions and concerns of the citizens quickly.
- 3) It is important that both government and citizens are well prepared. It has been realized that this task is quite time consuming. There it is always required to have a local partner able to support the process technology alone cannot do the job.

It has been proven that FUPOL can work in a multilingual environment (Kisuaheli, English, Italian). It could be shown that it was possible to extract separate hot topics in the above mentioned languages out of the mixed responses.

Figure 1 : Mtwapa Facebook Page

acebook 🔌 💷 🤗 Search for people, places and things	् 🙀 Peter Sonntagbauer Find Friends Home 👜 🔅
Humps Slum Upgradiu Directority Directorit	ng v Liked v rollowing Message v v
Community Designed to address challenges facing unplanned settlements through a project strate which encompasses community empowerment and capacity building	ه. 🗗 302
About – Suggest an Edit	Photos Likes Videos
Highlight	
Post 😰 Photo / Video	4 Friends
Write something on Mtwapa Slum Upgrading Project's Page	
Mtwapa Slum Upgrading Project shared Dragos-Paul Pop's abum.	
20 NOVERIDER 2013 NO	Invite Your Friends to Like this Page

Figure 2 : Mtwapa BLOG with embedded FUPOL opinion map

				News	
LEARN	SPEAK	REVIEW	VOTE	Looking for Water Points	
Wide Concerns Map				Water to be Added	
e opinions by clicking on the markers.				Appreciation Day	
		and the state	About Us	November 4, 2013	
THE R.	anna			Welcome to Ongeo November 2, 2013	
			Editorials	Events	
		14. 100		March 2014	
A month	Mombasa Managan		Library	MTWTFS	
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3.4 Pegeia

Pegeia is a hillside coastal town situated in the north of the district of Pafos, Cyprus, with population of around 10,000 residents. The municipality itself covers an area of 4,552 hectares making it the largest municipality in Cyprus in terms of geographic area. One of the most famous Cypriot beaches, Coral Bay, is a popular tourist resort in Pegeia where approximately 2000 holidaymakers visit the beach during the summer months. In addition, because Pegeia is built on the ancient site of the old Akamantida, there are many places of historic and archaeological importance, such as Yeronisos Island where expeditions have unearthed many fascinating and significant archaeological remains. Due to its location, climate, natural environment and rich history, Pegeia is one of Cyprus' main tourist hot-spots, attracting thousands of local and foreign visitors each year. Furthermore, many foreign nationals and expatriates have taken up permanent residence, which has facilitated in turning Pegeia into a cosmopolitan area with a diverse and multicultural society.

Pafos has been selected as the 2017 European Capital of Culture in order to accommodate the influx of tourists expected during the period leading up to and including 2017. In addition, ecological excavations have been taking place on Yeronissos Island for several decades. Many significant findings have brought internationally recognized archaeologists to the island to participate in the excavations. The municipal council, as part of the new sustainable tourism initiatives being planned, has considered various alternatives to promote the island as an archaeological landmark but at the same time doesn't want to affect the on-going excavations.

3.4.1 Policy Domain

The pilot actions for the Municipality of Pegeia are implemented under the domain of sustainable tourism. It includes two scenarios, one for gathering citizen and tourist opinions in order to improve the current infrastructure/facilities of the Coral Bay area, and the second one for determining a policy for promoting the island of Yeronissos as an archaeological attraction without harming the landscape of the island or interfering with the ongoing excavations.

3.4.2 Current status and lessons learned so far

Preparation of the campaigns relating to the two pilot tests for the Municipality of Pegeia began in June 2013, when public administration staff were trained in using various FUPOL platform features. Campaigns and Opinion maps for collecting comments and recommendations from tourists and local residents were subsequently hosted on the municipality's official website in both Greek and English along with general campaign information. Additionally, links to the opinion maps were posted on the municipality's official social networking sites (namely, Facebook and twitter) to promote the collection of comments and recommendations for both campaigns. A launch night was held later in the month to introduce FUPOL to the citizens of the municipality. The event was attended by around 250 Pegeia residents, who were informed about how the FUPOL platform allows them to express their opinion, contribute in the decision-making process and participate in the formation of policies. The campaigns and gathering of opinions were advertised online through the Municipality of Pafos' portal on the DIEGO platform, while the SEED platform presented information about the campaigns in Greek and English with carousel slides at infokiosks.



Figure 3 Coral Bay beach FUPOL opinion map

The FUPOL platform has enabled the Municipality of Pegeia to involve the public in all aspects of the policy-making life-cycle. The responses from both the local residents and tourists indicated that they were keen on participating by providing their comments, opinions and recommendations in order to help design new or improve current policies. In fact, it was frequently noted by citizens that the ability to provide a comment or recommendation visually felt that their opinions mattered and that they was being considered. One of the challenges, however, lies in appealing to more tourists and improving the quality and variety of proposed improvements.

Currently, the two pilot scenarios are at the evaluation phase. A focus group was carried out and a number of questionnaires were handed out to both citizens and public administration staff to rate FUPOL's governance model with respect to policy design, to assess public involvement and evaluate the platform features of FUPOL's ICT framework, in particular, campaigns, social media window/social media aggregation, opinion maps and questionnaires. The results of the evaluation will help the project partners to calibrate and improve the current FUPOL features.

3.5 Skopje

3.5.1 Background

Skopje is the capital of Republic of Macedonia, cultural, economic, educational, science and business centre with about 506 926 inhabitants and area of 1818 km.

Competencies, that are matters of public interest and local significance for the City of Skopje are: Planning and Spatial Organization, Protection of the Environment and Nature, Local Economic Development, Communal Activities, Culture, Education, Sport, Social and Child Care, Healthcare, Protection and Rescue, Firefighting and Supervision.

The modernization and efficiency of City administration, its processes, functions and procedures are the strategic objectives of the administration development. Using the new technologies and ICT infrastructure are the base of achieving these objectives. These objectives are upon the competences of ICT and modernization Department. Like other cities in the Western Balkan region, in recent years, the City of Skopje has experienced a huge construction boom. A new airport and many new buildings were constructed to make Skopje more attractive as a city and tourist destination. The growing number of citizens led to construction of new residential buildings and increased need for the transportation of commuters. As a result, the number of cars has increased in Skopje in the last few years with negative side effects such as air pollution, higher level of noise, congestion, lack of parking space, increased daily commuting time (to work, school, recreation, shopping, etc.).

3.5.2 Policy Domain

The pilot and related is focused on urban development planning, especially community facilities including recreation facilities and traffic. In the policy domain of traffic a specific challenge that is addressed is the optimisation of the bike infrastructure. It is a political objective to increase the % of the population using bikes from 2,5 % to 5 %.

3.5.3 Current status and lessons learned so far

The city of Skopje launched its first trial in July 2013 engaging the public in a discussion about outdoor sports equipment and subsequently in October 2013 about street lightning. Various PR activities were launched to alert the citizens on the possibilities of using electronic channels to influence policy decisions. While the first campaign on outdoor sports equipment did not have a big response, which was probably due to the timing (summer vacation) the second generated a lot of public interest. In December 2013 through January 2014, the main focus was the creation and popularization of the Vodno mountain recreational activities campaign. Public opinion was gathered by a questionnaire and an interactive map demanding the placement of pins at points of citizens' interest. The campaigns were publicized through Twitter and Facebook. A total of 2010 views are recorded to the posts. Public dialogue was sustained with 15 comments, 5 emails and 39 filled questionnaires.

In the month of January 2014 the City of Skopje launched its third trial, about the recreational habits on the mountain Vodno. This campaign was consisted of two survey lists and a chance for citizens to comment on the internet. This campaign was also a success and it generated many comments, suggestions and critical comments by citizens. In furthering openness and accessibility to the citizens, all comments and suggestions about the FUPOL project can be given through email (skopjefupol@gmail.com). This resulted in over 50 comments on this subject on the interactive map, the social media profiles (Facebook, Twitter and blogspot) and by e-mail.



Figure 4: Snapshot of Vodno recreation campaign

3.6 Zagreb

3.6.1 Background

Zagreb is the capital city and the largest city of the country of Croatia, its metropolitan area has a population of 1.2 million. The City of Zagreb ensures the necessary community facilities for the education of preschool (kindergartens) and school (schools) children and for their everyday involvement in sports activities and access to the City's cultural facilities. Involvement in sports activities and access to cultural facilities should be enabled for all other Zagreb's citizens and visitors, too. There are 60 public kindergartens that work on 204 locations. They take care for 31.877 children in 1.344 groups. Also they offer a preschool program for 798 children as well as different programs according to the interest of children and financial possibilities of their parents. There are 66.020 primary school children organized into 2.712 classes. Zagreb has 106 public primary schools and four schools for children with developmental disabilities. There are 6 private primary schools with 531 students in 46 classes.

There are 64 secondary schools with 36.648 students organized into 1.405 classes. Beside the public schools there are 4 religious and 15 private secondary schools. Regarding university education it is important to mention that 80% of all Croatian student studying at Zagreb university. Currently there are a lot of problems in providing adequate facilities for all above mentioned categories. Some of them are: insufficient number of kindergartens in some city districts, more than 30 years old kindergartens, without the adequate gym halls and playgrounds, lack of school premises in the existing primary and secondary school facilities, dilapidation of a part of the existing school facilities, lack of gym halls and playgrounds in primary and secondary schools, lack of primary and secondary schools with special education programs, lack of premises for holding university education, lack of accommodation facilities for an increasing number of students coming from other parts of Croatia and from abroad, unequal distribution of cultural programs across city districts, lack of sports facilities, an unequal distribution of sports and recreation facilities across city districts, insufficient number and inadequately equipped playgrounds, etc.

3.6.2 Policy Domain

The City of Zagreb has implemented two pilots in the domain of Land Use & Improvement of Social Infrastructure. The first one consists of two tests, one regarding the policy setting in the field of social infrastructure (kindergartens, schools, cultural and sports facilities), and the other one for gathering the opinions about a centre for autism. The second pilot also consists of two tests, one for the policy setting in the field of social infrastructure as well, and the other one for gathering the opinions apropos the children's playground in Remete.

3.6.3 Current status and lessons learned so far

The first pilot initiative was launched in May 2013. The City of Zagreb via FUPOL platform launched a campaign to gather citizen input on social infrastructure in Zagreb. The actual topics have been opened for discussion on the websites of the City of Zagreb, on the social network pages of the City of Zagreb and blog (http://zagreb-fupol.blogspot.com/), using the FUPOL platform. For that purpose it created four opinion maps, for schools, kindergartens, sports facilities and the Centre for autism with sensory park. The media has been informed about the new campaign through the Press Conference, the website of the City of Zagreb and Twitter and

Facebook of the City of Zagreb and the FUPOL leaflet has distributed to 32 locations in the City. The articles about the beginning of the campaign regarding social infrastructure and the Centre for autism have been published on different portals. All employees of the city government involved in policy-making in the two aforementioned domains are educated, they are given access rights and they are provided with continuous support in using FUPOL platform. Also, using the FUPOL platform, its feature for social network aggregation, the City of Zagreb created social media windows for searching through the social media sources. Once such content is available, the facilitator can use the specific platform functionalities (hot topic sensing) to extract the most debated issues; he can also provide certain visualization to present the results to decision makers in the City. It is a way to recognize the most interesting suggestions and include them in the agenda for the definition of new policy issues in the management of social infrastructure improvement.

By applying the FUPOL platform, the City of Zagreb has ensured the involvement of citizens in all phases of the policy creation. So far conducted phases are setting the agenda and creating the city's policies in the defined domains, and certainly plans to apply FUPOL approach in the phase of implementation and monitoring. During the campaign for the two earlier mentioned tests, held were two evaluation workshops with representatives of the city administration. One of them was related to the evaluation of simulation model and simulator, and other to evaluating other FUPOL features used in the campaign: campaign, opinion maps, questionnaires and social media aggregation.

Based on the current usage of FUPOL approach and platform, and their evaluation, there have been areas for improvement identified and in line with that feedback has been provided to partners who work on developing FUPOL features.

The key success factor for achieving the objectives in regards to project as such is the involvement of all important participants, especially citizens; therefore it is very important to start public campaigns in early stages of the project. Also, it is very important to involve the key public administrators and enable a good mechanism for evaluating the success of the project.

4 CONCLUSION

The results achieved so far demonstrate that it is feasible to support the policy design and implementation process in different scenarios and different political settings with the technology envisaged. It has also been acknowledged that local support over a longer period is required to make such an approach successful. In a next step the exploitation will be set up based on a worldwide partner network.

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Digital social innovation for developing places

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Structured Abstract

Purpose & Scope

This presentation looks at how data and ICT tools are used to help places become smarter in supporting prosperity and wellbeing for inhabitants.

Design/methodology/approach

Research undertaken by the author for the Tepsie project (www.tepsie.eu) comprising secondary research plus eight case studies from Europe and globally.

Results/findings

Technology trends (such as ambient intelligent space, intelligent agents, cloud based services, the semantic web and the internet of things, mobile apps, social media, plus augmented and virtual reality) are enabling us to better contextualise our physical interactions with people, things and places within and between specific places.

Conclusions

People's living and working needs are increasingly defined and realised through intertwining the physical and digital worlds which re-shape each other and become a seamless whole. These two worlds are becoming interwoven, as people rely evermore on connected devices to explore the physical world, digital information will have a growing influence on how they see, act and move through it.

Keywords: Social innovation, physical world, digital world, ICT tools, ICT data

Knowledge interaction for legitimate system actions

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Structured Abstract

Purpose & Scope

In 2012, PICTO (Piedmont ICT Observatory) was involved in an experimental project in which a local government used crowd-sourcing to understand people's needs in terms of Internet access and usages. Notwithstanding the positive outcome as for the implementation efforts, the project results were not fully satisfactory due to very low participation.

Design/methodology/approach

The paper analyses the reasons for this failure as these reflect the difficulties encountered by a number of public programmes in ICT. Discussion focuses on the need to improve knowledge interaction among different social agents, and to favour cross-disciplinary knowledge. The analysis is done based on insights from research of methodological innovation carried out at IRES also as a part of PICTO activities.

Results/findings

A claim is made that within any community cross-disciplinary knowledge is a necessary pre-requisite not only for a shared understanding of social benefits but also for enhancing the legitimacy of collective actions.

Conclusions

ICTs are essential factors for both enhancing knowledge interaction and anchoring it in the community practices. Raising awareness about these topics has a positive impact on the development of social benefits.

1 INTRODUCTION

As the 2005-2009 Piedmont broadband programme came to completion in 2010, questions were raised about the role of ICTs in supporting the regional smart growth as required by the Europe 2020 strategy. It also became apparent that the observation angle used by PICTO (Piedmont ICT observatory) in monitoring the programme had to be re-focused in order to improve the account of the technology impacts such as agents and organizations appropriate for ICTs in social practices and transform their original functions.

In 2012, the collaboration with the Asti Province provided an opportunity to address some of these issues. The Province decided to engage in what was then a unique experiment in the Italian context. It launched an experimental project (Monitoring ICT Digital Divide in Asti, the so called MIDA project) which directly involved citizens in the data collecting activity concerning broadband coverage, Internet access and usage. The project had PICTO's scientific support and the institutional endorsement of the R&D Department of the Piedmont Region [17].

The following different objectives motivated the experiment:

- a) An overarching policy goal to have more reliable (and geo-referenced) information about the quality of broadband services at municipal and sub-municipal level (as required by the European Digital Agenda);
- b) A management purpose associated with the need to establish a platform for information exchange between citizens and governmental bodies allowing for quicker service delivery at sub-regional level (as hoped for by national e-government initiatives);
- c) A research interest, stimulated mainly by the opportunity to explore a new type of approach for collecting information about ICT equipment and usage.

Notwithstanding the positive outcome as for the implementation efforts, the project results were not fully satisfactory due to very low participation of citizens. In the following pages, section two briefly recalls the main reasons of this failure. It is claimed that progress can be made by improving knowledge interaction among different social agents (stakeholders). In this regard, section three points out an E-Lab initiative, which has been recently launched in Piedmont to create an environment enabling policy-oriented cross-disciplinary knowledge. Some concluding remarks are made in section four.

2 LEARNING FROM FAILURE

2.1 Detecting reasons for lack of success

The reasons why so few citizens participated in the MIDA project are manifold, but three main explanations have been offered [15-17] which also reflect the difficulties encountered in the implementation of many ICT public programmes.

The first is due to the general uncertainty in the economy, which in Piedmont, as in many European countries, still permeates many social practices. It is very likely that this negative situation hampered citizens' willingness to embrace an innovative practice such as the MIDA project.

A second explanation has to do with the fact that the enthusiasm and expectations of the MIDA promoters did not match people's real interests. This also shows a sort of dis-alignment between how experts interpret e-government problems/solutions and how people perceive using e-government services.

Finally, as widely documented in several PICTO studies, certain socio-cultural traits of the regional population, such as ageing and low-education, might have been a barrier to people's participation. (According to 2011 ISTAT statistics, in fact, Piedmont is not among the most advanced regions in using ICT for communication and e-government).

Failures, however, are an integral part of any process of change. As Kelly wisely underlined: "Evolution can be thought of as systematic error management" [11].

In this respect, experience gained in the MIDA project provides a stimulus to continue the efforts. In particular, it sheds light on some aspects, which will deserve deeper attention in future investigations, such as those dealing with how to:

- Enhance government's ability in managing information and communication, to improve civil servants' technical competences and bring attention to the quality of citizen-government relations [10, 14];
- Align the understanding experts and decision-makers have about policy making and e-government problems/solutions and the social requirements which, according to people's world views should inspire the development of a "legitimate interaction which is fair to individuals and beneficial to social group" (p. 535) [19];
- Measure the accountability of collaborative forms of governance. They require the development of novel accountability models, as collaborative innovation processes rely on mixed rather than one fixed accountability standard and shift the accountability positions in the course of the governance process [18].

2.2 Looking ahead

The latter argument calls for a more comprehensive approach to e-government processes, where the scientific, technological, institutional and social dimensions could be integrated [2, 4-8, 9]. It is one of the challenges for building successful communities, which is confronted with the need of conceiving, implementing and managing socio-technical systems capable of adapting and reconfiguring themselves, as they support social goals [19].

While upgrading in the technological requirements can be met rather straightforwardly, social transformations are more demanding. As also shown also in the MIDA project the inertia and rigidities in many social organizations are often a main impediment. To meet that need, however, goes beyond the simple removal of barriers. It entails to consider and maybe evolve the fundamental underpinnings by which social interaction patterns are established and apprehended, and which ultimately allow for the production (and re-production) of community and/or a society.

Establishing and nurturing a cross disciplinary knowledge can have a positive influence on the process. It would bridge disciplinary knowledge here understood as something isolated, including knowledge domain, know-how used in undertaking a certain task, as well as the knowledge practice shared by a certain community. Underlying these arguments are broader epistemological (and ontological) issues related to the nature of human cognition and its limitation and to the inherent human strive to reduce the complex. For the sake of the discussion two complementary aspects are worth mentioning here. The first entails the understanding of how individuals are able to build a conceptual framework (a so called world-view) that ties together those arguments allowing positioning themselves in the world and acting reflectively upon / within this framework. A world view, in fact, allows individuals to understand their surrounding environment, the larger societal world, their place in it, and to make critical decisions for shaping individuals' own future [1].

The second aspect is concerned with the definition of the kind of inquiring system we have to leverage in order to get a cross disciplinary knowledge. As already pointed out in the literature, we need inquiry systems that "are designed to discern what would be a desirable addition to the real world" (p. 263) [13]. These systems are very different from truth or ideal seeking inquiring systems; the former being engaged into a search for what is true, the latter with what would be the ideal.

A distinctive dimension of this mode of enquiry is the existence of explicit relationships between those engaging in the enquiry (scientists, citizens, policy-makers, other stakeholders) and those who have to be served by the results (scientists, citizens, policy-makers, laymen) of the enquiry process (that which is desirable).

It necessitates the development of an approach that is capable of yielding the knowledge of what is desirable (the design of the inquiry-action pairing) on behalf of key stakeholders, who would benefit from the outcome (the realization of the inquiry-action pairing) of the adopted knowledge approach.

3 AN E-LAB FOR KNOWLEDGE INTERACTION

Developing such an approach is a main concern in the establishment of more robust and legitimacy prone socio technical systems [20]. Indeed, the issue is at the core of recent efforts to conceive open innovation paradigm and support innovative government [4-6]. On a conceptual ground the approach can be viewed as a sort of boundary objects, e.g. "abstract of physical artefacts which reside in the interfaces between organizations or social communities and have the capacity to bridge perceptual and practical differences among diverse communities in order to reach common understanding and effective cooperation" (p. 19) [8]. As such, boundary objects help overcome barriers between practices, facilitate mutual learning in heterogeneous environments and/or spur novel learning endeavours for coping with new practices.

A specific type of boundary object, for example, is modelling [16]. Such an activity, in fact, can be understood as a projective undertaking meant to uncover interpretive keys to problematic definitions and engagement in actions, while making a cognitive mediator between the scientific, policy and societal worlds available. Another example, broader in scope, is the *E-Lab for Situated Collective Intelligence*, a project recently launched by PICTO partners as an e-community of *The Complex Systems Digital Campus* (CS-DS) [3], see Figure 1.

The CS-DS is a UNESCO sponsored initiative, which federates the Research and Educational Institutions worldwide addressing the challenges of complex systems science. It coordinates an evolving international network of scientists to identify the scientific challenges though 'living complex systems roadmaps', facilitating the sharing of research and educative resources to address these challenges.



Figure 1: E-Lab for Situated Collective Intelligence

Within the roadmap of the CS-DS, the E-Laboratory main focus is the enhancement of a system capability to devise projective actions in order to shape more socially, environmentally, economic and institutionally viable developmental paths. To some extent, the E-Lab initiative shares some of issues of the European research policy about the ways science and technology can support development and acknowledge the increasingly important citizens' stake in science and innovation [4].

Results of PICTO past activities helped to federate the E-Lab founding partners and provided stimuli to ground the initiative according to the key dimensions shown in Table 1.

Key Dimensions	Descriptive tags				
1. Situated	Local, Global				
2. Collective	Coordination, Competition, Collaboration				
3. Intelligence	Information, Learning, Control, Education, Decision Making				
4. Complex	Multi-Level Structures, Self-Organisation, Micro-macro, Emergence, Knowledge Variety, Cloud computing, IoT				
5. Societies	Human Life, Human Behaviours, Organised Institutions, Anticipatory Governance				

Table 1	l:An	overview	of the	E-Lał	oratory

The E-Lab is geared towards supporting policy processes. In the light of the previous arguments, its objectives are three-fold:

- a. Developing an approach that is capable of yielding the knowledge of what is desirable, thus making modelling activity as a main source of innovation in the whole policy organization process (better alignment between governmental departments, raising ICT education levels among civil servants, developing model-based service portfolios, etc.).
- b. Making the modelling tools alive in real policy context. This means in particular to pay a deeper attention at the two crucial phases of modelling activity: a) encoding, and namely providing legitimization to the issues to be modelled, and b) decoding, making those societal bodies having certain action (policy) responsibility more appreciative of the modelling activity;
- c. Building the socio-technical system for leveraging valued knowledge in situated (urban/ regional) policies as a main source of innovation in the whole policy organizational process (better alignment between governmental departments, raising ICT education levels among civil servants, developing model-based service portfolios, etc.).

The E-Lab is itself a learning socio-technical organization. Established in September 2013, it is expected to grow a notion of collective intelligence as a result of:

- a) collaborative actions, built upon the asset of the partners' expertise and the relationships with other research centres and organizations;
- b) interactions with different worlds, and promotion of cross disciplinary knowledge;
- c) the collection/activation, also by means of ICT networks, of the information (knowledge) embodied in the set of tangible (and intangible) human artefacts existing in local contexts.

4 CONCLUDING REMARKS

ICTs make essential factors for both enhancing cross-disciplinary knowledge and anchoring it in the community practices available. Raising awareness about the issues can have a positive impact on encouraging legitimate actions, thus pushing for the development of social benefit. The *E-Lab for Situated Collective Intelligence* recently launched as a part of *The Complex Systems Digital Campus* is a step forward. It has mobilised a collaborative network and created a learning environment for enabling innovative policy activities.

Under the pressure of major cost cuts and the unrelenting waves of technological and social changes, the *E-lab* activities represent an opportunity for training, in situated contexts, for more resilient socio-technical systems.

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The Set of Simulations & Games for Improving Citizens' e-skills

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Structured Abstract

Purpose & Scope

In line with its Digital Agenda, the European Commission focuses on the areas of digital literacy and e-competencies. According to research however, citizens' level of e-competencies are not sufficient to be able to evaluate a government's managerial decisions or initiatives. Cocreation (active client's participation in designing and making of the product) is fruitful, if the level of professional knowledge and e-competencies is high among citizens. The main purpose of this presentation is to describe designing of a set of simulation tools in each field related to municipality committees for improving e-skills and professional competencies. In Lithuania the simulation tool aimed at building renovations. These simulations could help citizens to evaluate the usefulness of renovation.

Design/methodology/approach

Model of simulation was designed.

Results/findings

In this paper the development and maintenance of building renovation is considered as an example of modelling.

Conclusions

Simulations help citizens to improve knowledge and skills in different fields.

Keywords: simulation, planning, smart technology, e-skills, open database.

1 INTRODUCTION

In line with its Digital Agenda, the European Commission focuses on the areas of digital literacy and e-competencies. According to research, however, citizens' level of e-competencies is not sufficient for them to be able to evaluate a government's managerial decisions or initiatives. The main purpose of this paper is to describe the designing of a set of simulation tools in each field related to municipality committees aimed at improving e-skills and professional competencies. Nowadays, engineering students have sufficiently high levels of IT literacy, but they lack knowledge in specialized fields, such as economics, medicine, management and others. On the other hand medical students lack knowledge in IT. Educated people are professionals in their fields but their skills in other fields are low. Computer educational games can help people of various ages to obtain necessary competences [3,6]. Computer business game is already successfully used in educational processes. Specialized computer games can be useful in terms of timeliness of solving a problem. Today one of the most important problems in Lithuania is old, ineffective buildings and their inhabitants. Inhabitants should understand the usefulness of heating energy savings [2]. Therefore, the simulation tool is aimed at building renovations. These simulations could help citizens in evaluating the usefulness of renovation.

2 SIMULATIONS FOR IMPROVING ECONOMIC KNOWLEDGE AND E-SKILLS

Computer educational games are prevalent in the whole world and are widely applied in schools and universities, i.e. in the process of formal education [1,3]. Such games are associated with the taught subject, for example, biology, physics, mathematics, foreign languages etc. Informal educational institutions also use non-traditional teaching tools such as serious computer games. One attractive business game is used to master economic fundamentals in Young Computer School at the Kaunas University of Technology [1,4]. At this school classes are held on the weekends therefore it is very important that they are not boring, and obtaining knowledge is a pleasant activity. Similar ideas are employed by business executives, who want to create favourable conditions for professional development [5]. There are many mobile applications created for individual leisure activities that do not require deeper thinking or calculations for further decisions.

The goal of the tool for house renovation modelling is to help the inhabitants to understand the usefulness of house renovation, to help them to choose the set of renovation measures necessary, and to see, at which level of disrepair the renovation is useful and the most profitable.

According to the European Commission Vice President Antonio Tajani, new technologies offer major potential, not only for new houses, but also for renovating millions of existing buildings to make them highly energy efficient in line with the EU 2020 objectives [2].

A majority of Lithuania's inhabitants live in the flats built long time ago (Figure 1) where heating is ineffective. The problem is that the inhabitants are not willing to renovate these old houses.

The reasons for this unwillingness are:

- Lack of funds;
- Lack of understanding of the difference a renovation would make.



Figure 1: Distribution of population by dwelling type (% of population), 2009

The people have different levels of education and thus it is hard for some of them to find out the actual usefulness of house renovation. Thus, to make it easier, it seems reasonable to create a game that would help to explain the influence of renovation in a simple and understandable way. The user interface of the modelling tool must also be simple.

Renovation can be:

- Partial (windows, doors and internal aggregates are being changed);
- Full (also the walls are being changed).

In order to create a modelling tool, it is necessary to find out the characteristics of the present situation. As the time passes, the value of the house changes, its operating expenses increase, especially the heating costs. Lithuania is dominated by the older housed that have insufficient heat isolation. Also, they have been built using materials of low quality, resulting in high operating expenses. The value of such houses is also low – and decreases.

We will consider the case when the renovation is meant to decrease the heating expenses.

Source: EUROSAT Database

The requirements for improvement of the building's qualitative indexes also have to be set. For that it is necessary to:

- Analyse the methods and measures that allow achievement of the set indices;
- Evaluate the longevity of measures and materials;
- Choose the suitable variation of renovation.

The model of simulation (game) which uses real data from existing databases is shown in Figure 2.





In the model that can be used to evaluate the current situation (Figure 2) various open databases can be used (Municipality DB, National DB, Statistical Department DB). As a side effect, the ability to use those databases can improve the e-skills level of the user. Partial presentation of results, demanding additional use of other tools (for example, MS Excel, ArcGIS online) can also be used to improve the ICT competencies of the user. The model also includes the possibility to extend the decision making by adding more data (Figure 2).

Before creation of the actual software it is necessary to evaluate:

- The changes of the value of the house;
- Maintenance expenses (emergency repairs) depending on time and type of the house (building materials);
- Changes of heating expenses depending on time and type of the house;
- Use of partial renovation (changing the windows) and its influence to the expenses;
- The distribution and changes of owner expenses;
- The changes of average owner expenses;
- Heat resistance of the materials, their price.

Modelling can also take into account such factors as availability of a loan, maximal available funds. Figure 3 shows a possible (simplified) graph of user expense graph.



Figure 3: Changes of user expenses

In this case the owner could see that the total expenses for the period until the paying back of the loan stay constant, while later they decrease (Figure 3). That depends on the amount of loan. Naturally, if the loan is larger, then a user's expenses increase after renovation, but the loan paying period is shorter. The lowering of total expenses comes sooner (Figure 3).

The model enables an analysis of other cases (after renovation to increase room temperature during cold winter season if before it was not enough). It is important to restore a house's value. The value change depends on the works carried out and their effectiveness.

The owner is concerned that expenses for house renovation be used effectively, i.e. applied renovation model (renovation method) be suitable, price and effectiveness of used materials be adequate, used technologies ensure high quality and longevity. These indices are important, they determines suitable ratio of cost and benefit. The game players can choose materials, insulation material thickness and technologies. Evaluating cost and effectiveness of all these components it is possible to find amount of the saved finances due to the decreased heating expenses and to determine amount of the necessary loan as well. The final result of the model is presented as the time when user's total expenses decrease.

3 CONCLUSION

Presented simulation tool helps users to understand the usefulness of a building renovation and allows for improvement of e-skills. Using simulation in communities allows people to understand dependencies among factors. At the same time it helps the government to improve citizenship.

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The effective training, an important step towards the changing minds

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Structured Abstract

Purpose & Scope

The digitization of different industrial and service sectors increases the necessity to know, how to reflect on the situation and how to react to it. The process involves rethinking the real meaning of digitization. The paper focuses on the question: do managers and officials have sufficient knowledge and skills to manage the change or transformation and innovations effectively? The emphasis is on the importance of education, effective training and communication.

Design/methodology/approach

The presentation is based on a study of present situation in a teaching and learning process. Comparative analyses of current teaching and learning approaches from the perspective of users have been used there.

Results/findings

The results of the study point to substantial reserves in preparation to manage the digitisation process successfully. The maim reserves seem to be in sufficient infrastructure, user friendly web environment, adequate information on change management, application operation etc.

Conclusions:

A gap between requirements of up-to-date practice and adequate preparation of current or future managers or officials still exists. The emphasis should be placed on understanding the process of digitisation and its benefits. The users should be able to acquire sufficient knowledge and skills to work with applications and effectively use them.

Keywords: effective training, information and communication technology, user friendly, preparation, public, gap

EU Community: The Next Era in EU Policy-Making

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Structured Abstract

Purpose & Scope

"EU Community" (http://project.eucommunity.eu/), partly funded by the European Commission, goes beyond current generation of policy modelling and argumentation tools. It provides decision makers with better policy options by combining social media interactions, qualified contributors, document management, visual analysis plus online and offline trust-building tools.

Design/methodology/approach

"EU Community" will transform the existing fragmented EU public sphere into an expert community of EU policy stakeholders. This will be achieved by transforming EU policies' complex system into visual intelligence for all.

Results/findings

The results will be tested and deployed over an EU policy media network, with a track record of sustainability and multilingualism. Three pilots, which suit the EU political mandates 2014-2019 have been selected (FUTURE OF EU, RENEWABLE ENERGY and INNOVATION STRATEGY) and will be undertaken by a network of European stakeholders (policy-makers, journalists, experts, NGOs and informed citizens) in several EU countries, supported by localised policy media.

Keywords: community, policy-making, policy modelling, visual intelligence

Mainstreaming digital benefits for active citizenship and employability

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Structured Abstract

Purpose & Scope

The goal of the presentation is to describe the Telecentre Europe initiative Get Online Week, in 2014 one of the milestones of the eSkills for Jobs EC campaign.

Design/methodology/approach

Telecentre Europe is a European NGO representing more than 20,000 telecentres, libraries and ICT community centres across Europe. As the voice of the elnclusion sector it advocates for the recognition of the role of public and third sector telecentre networks as facilitators of digital learning and digital opportunities for the whole society – with a particular emphasis in those left behind: the unemployed youth, the elderly, the migrants, the disabled people, rural population.

Results/findings

Recent research-based evidence demonstrated the weight of the sector (250,000 eInclusion intermediaries, one every 2,000 inhabitants), which has received limited policy attention so far. However, telecentres are a key supporter of the EC sponsored Grand Coalition for Digital Jobs by mainstreaming locally the relevance of digital skills and jobs, both through its own network of Local Coalitions already active in 10 countries, and the Get Online Week, which in five editions reached almost 1M Europeans and in 2014, under the motto *Get empowered, Get employed.*, is one of the milestones of the eSkills for Jobs EC campaign.

Keywords: *elnclusion, digital inclusion, e-skills, digital jobs, grand coalition, local coalition, get online*

Citizen-Centric eGovernment Services

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Structured Abstract

Purpose

To present innovation in regards to Citizen-Centric eGovernment projects.

Design/methodology/approach

Citizen-Centric eGovernment Services are a lot more than just technology or specific services. They are about the way we are changing and re-thinking eGovernment by using smart technologies and by using these services as means, even as a catalysts, for change and improvement in our societies and every-day lives.

Results/findings

In order to boost the development, adoption and deployment of innovative eGovernment Citizen-Centric services society needs to support and reward ideas on new ways of delivering services.

Conclusions

Although there are cultural and organisational differences within and between countries, it is important to have an open minded approach towards innovation and citizens' demand for developing Public digital services.

Keywords: Citizen-centric, e-services, research, innovation, eGovernment

Knowledge governance in local government

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Structured Abstract

Purpose & Scope

The aim of the article is to improve the knowledge governance theory, a very important notion in terms of creating an ICT Observatory. It deals with diagnosis of knowledge governance in public administration entities.

Design/methodology/approach

An analysis of literature available on the subject, as well as primary research within the Marshal's Office of the Lodz Region have been carried out.

Results/findings

It has been confirmed that the majority of public administration entities in Poland do not implement knowledge management policy. The analysis of the lack of such instruments supports conclusions made by literature on the subject. Additionally, it has been demonstrated, that one of the main reasons for this lack, is the problem of digital exclusion among the employees of the public administrations.

Conclusions

A conclusion has been proposed in terms of a basic path to strengthen the use of ICT tools and improve digital literacy. This is a precondition to implementing knowledge governance in local government entities in Poland.

Keywords: *public administration, knowledge governance, digital literacy, digital exclusion, civil servants.*

1 INTRODUCTION

The Lodzkie Region has begun preparations to establish an ICT Observatory, due to participation to INTERREG IVC ONE project. A diagnosis of potential risks should be made before making the decision to set the Observatory up. One of the risks concerns an ability to make good use of the results of its activities. The regional self-government will have to tackle a problem of an effective implementation and exploitation of modern knowledge base – an ICT Observatory.

2 KNOWLEDGE AS A RESOURCE OF AN INSTITUTION

Polish local government administration nowadays faces more and more challenges that used to be typical for commercial organisations. City Halls and Marshal's Offices employ frequently a few hundred or even few thousand people. They take care of a wide range of organisational, logistical, managerial and investment tasks. This situation drives change from traditional ways of management towards "corporate management". Regardless of the type of management that is being introduced (corporate, process or project management); many organisational and human resource problems will be identical. One of them is overcoming the existing, natural and limited exchange of information and competencies, or in other words knowledge management. "In the modern world one of the pre-requisites of becoming a successful organisation is gaining a high level of knowledge as well as being able to update it and use it. Such knowledge and ability to sustain it should also distinguish an organisation from its competitors, build its potential to attract clients and possible partner organisations as well as gain better position among other companies. This should result in gaining competitive advantage over other organisations" [1]. All of us intuitively understand the term "knowledge management", for example, as an ability of an institution to learn from its employees and partners and to use such knowledge in everyday tasks. Leaving intuition aside, knowledge management became of interest to science as well. "Knowledge management is one of the most popular management concepts that attracts attention of many scientists, which is proven by a wide variety of papers and conferences focused on this subject. However, knowledge management is not so popular in practice, even though it is possible to implement it in all kinds of organisations, regardless of their activity, brand or specific conditions. It is a universal method of managing an organisation, because it refers to the resources used in every organisation and, given the changing environment and growing expectations, each organisation should be able to manage these resources" [2].

Knowledge management emerges in many scientific disciplines; therefore, we can expect different definitions of the term "knowledge". "Within the concept of knowledge management there already exist several definitions of knowledge. It is usually understood as:

- making a connection between a piece of information and its understanding;
- a result of cognitive transformation of information and experience as well as learning;
- the entire knowledge of a man the reflection on reality in human mind;
- proven beliefs" [3].

An example of the first type of the definitions mentioned above can be the one found in knowledge management paper by Probst, Raub and, Romhardt: "knowledge is the total of information and skills used by an individual in solving problems" [4]. An example of the next group of definitions can be found in the papers of Z. Mikołajczyk, according to whom knowledge is "a certain set of contents (information and data) collected and preserved in a human mind,

which result from experience and learning process. People create new quality, gain experience and create knowledge by means of transforming information collected in their minds and "enriching" it with new learning experience" [5]. The third type of definitions can be found, among others, in the papers of J. Kisielnicki, who defines knowledge as "a set of all information, convictions, beliefs and so on, that are of cognitive and/or practical value" [6].

An example of the fourth of the definition types is the definition formed by E. Skrzypek: "knowledge is the mastery, consciousness or understanding achieved by experience or study; knowledge is a state or fact of understanding something; the sum of all that was experienced, discovered or learnt; knowledge is teaching, erudition; knowledge is also specific information about something" [7].

However, no matter how we define it, "in the age of globalisation and the Internet, knowledge is at the same time a resource, an asset and capital. The speed of economic changes as well as processes and phenomena existing in a changing environment imply or even force understanding the essence and impact of the applications of knowledge. Modern organisations that want to survive and grow should regard knowledge as their strategic resource. It means that there is a need to create and implement knowledge management system in every aspect of the organisations' activity as an integrating process, which describes how the adopted strategic goals can be achieved" [8]. Therefore, if managing strategic resources and their rational use are, understandingly, key objectives of an administration (such as increasing effective budget use, reducing costs, increasing efficiency and streamlining human resources), then knowledge management should also be perceived this way.

The problem of knowledge management is of crucial importance in the context of the intended regional ICT Observatory, which, in fact, is planned to be a database on the development of information society in the region. Obviously, the applications for the knowledge gained within the framework of ICT Observatory will be slightly different, however, the methods of building up these systems and the challenges on the way are the same.

3 KNOWLEDGE MANAGEMENT IN SELF-GOVERNMENT UNITS

"Knowledge management in a company means building up procedures and skills in order to achieve its goals with respect to all sorts of information-related activities. First of all, it requires collecting information in an optimal way so as to increase knowledge. Secondly, it necessitates using knowledge and information possessed by the employees. It also entails collecting and storing information in a way that prevents loss and enables efficient retrieval. The fourth requirement is transforming information in an optimal way, allowing for making the right decisions, as well as sharing knowledge in a proper way. And finally, there is the need for developing ways of sharing knowledge with the outside world in a way that helps to achieve the company's goals" [9]. So, what does the knowledge management problem look like from the perspective of self-government administration? It can be looked at from four different angles detailed in Table 1.

Table 1: Contextual scope of knowledge management

Functional aspect:

Management, which embraces recurring and permanent management functions, focused on personalised, codified and sound knowledge resources and process in which they are used as well as conditions in which these processes are realised, in a way that facilitates achieving the organisation's goals.

Process-related aspect:

Forming and prescriptive acts that foster environment enabling efficient implementation of knowledge strategy and knowledge management strategy as well as realisation of operational functions, therefore implementing organisational systems of proper structure that can optimize the main processes related to knowledge, environment, culture and organisational structure, which will empower people to build up knowledge, share it and use it properly.

Instrumental aspect:

Appropriate selection and use of instruments utilised in the main processes related to knowledge at all levels and in all areas of an organisation. Set of instruments is very wide and includes economic and finance apparatus, legal, social, organisational and technical tools. Examples of instruments include, among others, organisational systems used in realising operational functions such us: IT system, motivational system, controlling system and so on; strategies of different levels of organisation; tools like internet, intranet, extranet, conference rooms as well as methods like meetings, quality circles, kaizen, brainstorming and the like, which form the system of knowledge management and are used by it.

Institutional aspect:

It includes a system of positions and teams (of strategic and operational level, formal and informal) that realise functions and tasks related to knowledge management of an organisation.

Source: Mikuła B. 2011, Istota zarządzania wiedzą w organizacji, in: Potocki A. (editing), Komunikacja w procesach zarządzania wiedzą, Fundacja Uniwersytetu Ekonomicznego w Krakowie, Kraków, p 18.

The analysis of the above table leads to a conclusion that process-related and instrumental aspects, as per B. Mikuła's definition, should be the key ones for local administration. Local self-government units gain knowledge about their clients when they undertake their tasks. Frequently, this information includes not only the identification data, but also information about the clients' expectations, financial and personal (family) situation. Additionally, the offices have access to a wide range of data such as statistical data and spatial economy data of the region in which they operate. Unfortunately, in most cases the data come to the offices in non-editable formats, most frequently paper, and they arrive only to the units dedicated to specific tasks realised by self-governments or even parts of such tasks. This situation results in creating many archives, which do not form any logically or structurally coherent database. The main solution that is being used by commercial organisations in such cases is Customer Relationship Management system. CRM is "an application or a set of applications based on database mechanisms, which enables a company to manage its customer relations.
In general, CRM systems can:

- maintain database of clients including purchase history;
- control the status of orders and receivables including an automated option to send out payment reminders in managing receivables;
- maintain a history of contacts with particular clients: e-mails, contracts, enquiries, offers, invoices and the like" [10].

"Implementing such systems should help to achieve the following business goals:

- reduce costs
- increase efficiency
- speed-up innovative processes
- · develop new areas of activity or new products
- · reduce business risk
- increase motivation and satisfaction of the employees
- improve organisation's growth
- · improve quality of products
- · increase client satisfaction and/or quality of service
- improve planning, increase efficiency, optimise time cycles and help keeping deadlines" [11].

Therefore, knowledge management becomes a critical requirement for local government in the context of organisational efficiency, speed of action and expenditure rationalisation. There is a reason in saying that "managing knowledge means acting in a way in which the knowledge gap between the knowledge resources and the knowledge needed for taking decision is the smallest possible" [12].

Another aspect that should be considered when implementing knowledge management system in local government offices is human resources of these institutions. The offices employ people who bring into their organisations a certain pool of knowledge and know-how resulting from their previous work experiences, achieved schooling (different studies at different universities) and send the employees to specialised trainings. Using this potential "influences the quality of value provided to the client, based on the employees' knowledge, which means a combination of criticism and intuition as well as the ability to team-work in creating innovations" [13].

It should also be remembered that local governments issue many decisions, instructions and resolutions that impact citizens, economic units and other public institutions. Access to these documents is an important source of knowledge that should be managed too. "It is done via Customer Knowledge Management (CKM). CKM concentrates on the knowledge possessed by the clients; it collects such knowledge, shares it and distributes it for the profit of the clients and the enterprise. Primarily CKM, like CRM, focuses on the knowledge about the clients. However, it is just the first step in the actions taken in CKM. Similarly to the way the traditional knowledge management focuses on the employees who have knowledge in order to begin the process of sharing, developing and using knowledge in a more efficient manner, CKM focuses on the knowledge possessed by the clients. In the process of contacting the company, doing business transactions, searching for required products and services and using them the

clients gain knowledge that can be of crucial importance for the organisation in improving its operations and achieving high clients satisfaction" [14]. For that reason, from the point of view of local administration efficiency and the client perception of its activities in particular, CKM is as important as managing its own knowledge.

Therefore, there are no doubts left that local governments are complex social systems created by people (employees, supervisors, top management and clients) in which "both failure and success becomes their own" [15], it seems illogical that knowledge management is so scarcely used to increase odds for the everybody's success.

4 MAIN CHALLENGES IN IMPLEMENTING KNOWLEDGE MANAGEMENT SYSTEMS IN LOCAL GOVERNMENTS

One of the results of CAF self-assessment carried out by the Marshal's Office of the Lodzkie Region when it was trying to meet the ISO norm was creating six corrective projects. These projects were to improve internal procedures, which scored poorest in the Office's self-assessment. One of them was to prepare tools and procedures for implementing a base of knowledge and employee competencies. The project team investigated the expectations of the employees with reference to collecting and sharing knowledge. Then, the team built up application, which met these expectations, and set up a procedure describing, how it should be used. More than 50 employees volunteered to test the new tool. The tests were successful and a few ergonomic and functional improvements were introduced as suggested by the testers. The tool, ready for implementation and the required supporting documentation were laid at the disposal of the Office management. The project has not been implemented by now and when exchanging opinions with the employees from other Marshal's Offices in Poland, it turned out that for the last five years most of them tried to implement knowledge databases and only a few succeeded. It is then worthwhile to ask: What are the biggest barriers in implementing knowledge management systems in the offices of regional self-governments? "The main road blocks are:

1) at the strategic level (top management)

- · lack of time and sufficient awareness of the subject to take care of it
- focus on short-term goals
- expecting quick, measurable returns
- focus on cost reduction
- · reluctance towards new ideas and technologies
- fear of loosing power;

2) at the tactical level (medium-level managers)

- · unjustified concerns about the information security
- · blaming technological insufficiency
- missing motivation to share knowledge
- · no courage to experiment
- lack of time
- focus on short-term goals;

- 3) at the operational level (specialists)
 - unwillingness to document their own knowledge
 - lack of time
 - over-flooding with information
 - fear of consequences
 - lack of trust
 - unwillingness to use somebody else's solutions" [16].

The above list show that according to Ciszewski the main barriers in implementing knowledge management system are people, who perceive the institutions that employ them only through their own interests and, by definition, are not interested in cooperation and sharing knowledge with their co-workers. Slightly different barriers, but similar conclusions can be found a book by M. Żemigała "Jakość w systemie zarządzania przedsiębiorstwem" ("Quality in enterprise management system"). "In Polish economic environment the following barriers in managing knowledge in an enterprise can be observed:

- management system that does not promote employees' efforts to gain and share knowledge
- · insufficient motivation of the managers to share their knowledge
- · lack of time to share knowledge with the others
- · employees not knowing with whom to look for information
- organisational structure that facilitates exchange of information only within particular departments
- corporate culture that promotes individual results and individual knowledge instead of knowledge sharing
- · limited resources for implementing new solutions
- · user-unfriendly information system
- missing awareness among the employees that their knowledge can be of use to somebody else"[17].

The root causes described by both B. Ciszewski and M. Żemigała result from studies carried out in enterprises. In spite of that, they are applicable in the big offices of public administration.

5 CONCLUSION: PRE-REQUISITES FOR SUCCESSFUL IMPLEMENTATION OF KNOWLEDGE MANAGEMENT

Assuming that "knowledge management is a set of methodical activities based on creating, using and spreading non-material conditions within an organisation so that people, who realise their prescribed goals, have an easy access to useful knowledge when they need it and how they can easily use it (data banks, computer applications, instructions, Internet, electronic mail and so on)" [18] and analysing the barriers to successful implementation of knowledge management systems as described above leads to a conclusion that the pre-requisites for success are friendly environment within the institution and efficient implementation leaders. Putting these assumptions into practical actions, it should be noted that "important preconditions for effective implementation of knowledge management include:

- creating a unit responsible for knowledge management and transparent structure of knowledge management within the organisation (proper rank and support of the top management)
- engaging professional external consultancy in the implementation (new quality, required audit, missing own experience)
- · creating IT infrastructure that supports knowledge management
- · improving communication flow in the company
- · conducting trainings related to knowledge management
- creating environment that facilitates change of the organizational culture (learning organisation, subject-matter experts, motivational system promoting knowledge sharing and so on)" [19].

Implementing knowledge management in public institutions must be based on skilful combinations of human potential of a given office with the possibilities that the modern information technology gives. However, the synergy of these two implementation aspects is possible only under condition that the top management of the institution is fully won over to the need for such implementation and that the management will decide to lead such implementation remembering that "knowledge management means methodical creating, sharing and using knowledge in the organisation" [20]. An important factor of the change caused by implementing knowledge management is the simple fact, that public administration is "by nature" reluctant to any change. Clerks embedded in the office hierarchy, which not only does not promote, but even punishes innovative behaviour and push for change, tend to flow with the tide and frequently passively resist any organisational novelties. Therefore, "when implementing knowledge management system one should focus on showing the end-users that even though using this tool requires additional initial effort and time spent on sharing knowledge with others, codifying and digitalizing it, in the longer timeframe, it will help to save plenty of time, thanks to the possibility to use their own solutions as well as the solutions of their co-workers" [21].

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About the ONE project

The ONE project aims at improving regional capacity for planning investments in ICT through setting up of a network of regional 'observatories' in Poland, Germany, Italy, the Czech Republic, UK, France and Cyprus. 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. Project partners tackle the framework conditions for the generation of knowledge and the development of new ICT products and services. This requires taking into consideration varying framework factors, i.e. institutional, organisational, technical, and relational. 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.

