Interoperability of eGovernment: Research on EU Policy and Practice

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Abstract: Interoperability is crucial for achieving efficient and effective delivery of cross-boarder and cross-sectoral public services. It directly contributes to the achievement of goals of the Digital Agenda for Europe in particular and the Europe 2020 Strategy in general. In this context, main issues, knowledge units, and legal base of interoperability must be clearly understandable for all who are involved in defining, designing, and implementing Europe-wide public services. While most European countries have developed excellent legislative frameworks and have set up the appropriate institutions for their implementation, the knowledge of the specialized regulations and the necessary skills among the actors involved remain inadequate. The market research performed shows that as the topic of eGovernment and its regulations are quite new, no streamlined system for learning of the target groups (staff of local, regional, and national public administrations, national institutions and agencies, managers of eGovernment projects, developers of public services, policy makers, etc.) in the area of interoperability exists in the countries of the EU. The recently started LLP Leonardo da Vinci project "ELGI- eLearning for eGovernment" addresses this issue and aims at development of an e-learning course for delivering knowledge concerning interoperability. The paper presents work in progress related to the second work package of the mentioned project. Its objective is to study publicly available documents constituting EU policy and reflecting EU practice in the area of interoperability with further use of results in development of the e-learning course. The paper provides summarization of main findings obtained so far and pays attention to the problems impeding development of public services, definition of interoperability, its scope, and beneficiaries, as well as the main most important recently accepted documents and available information sources which can be used for understanding the legal base and the current state in achieving interoperability of public services.

Keywords: interoperability, eGovernment, public service

1. Introduction

Interoperability is one of the hottest topics of the European Union (EU) during the last decade, because it is crucial for achieving European integration and concerns core aims of the EU (EC 2010b). According to (EC 2010c), "The European Union is about cooperating to create an environment in which citizens and businesses can thrive. European public administrations have to lead the way in working together. This cannot happen without real, effective interoperability between public administrations at all levels". Taking this context into account and bearing in mind that there is a huge number of legal documents and ongoing intensive efforts in establishing of interoperability, there is a need for a system for acquiring corresponding knowledge by target groups directly or indirectly involved in development of eGovernment. The project "ELGI- eLearning for eGovernment" started in 2011 aims at producing of an e-learning course for delivering knowledge concerning interoperability. The paper presents work in progress and provides summarization of main findings obtained so far in relation to study of publicly available documents constituting EU policy and practice in the area of interoperability. Section 2 defines eGovernment and a public service (PS). Section 3 describes problems which impede development of PSs. Section 4 pays attention to interoperability. Section 5 identifies main sources for acquiring information on interoperability of PSs. Conclusions and directions of future work are discussed in Section 6.

2. eGovernment

eGovernment in Europe started to evolve actively since the beginning of the current century. Its strategic focuses are related to the achievement of the Lisbon goals (http://www.europarl.europa.eu/summits/lis1_en.htm) of becoming the most competitive and dynamic knowledge-based economy in the world and reduction of barriers to the internal market for services and mobility across Europe (EC 2003).
eGovernment is understood as the use of ICT in public administrations (PA) combined with organizational change and new skills in order to improve PSs and democratic processes and

strengthen support to public policies (EC 2005). Organizational change is related to rethinking of structure, processes, and behaviour of institutions of PA due to new ways of doing their work.

A PS (Deloitte 2010, EC 2010b, EP 2004):
- is a cross-boarder public sector service;
- is supplied by PAs;
- the supply occurs :
  - between and within different PAs;
  - from PA to European businesses;
  - from PA to European citizens;
- the supply is possible by means of cooperation of PAs and usage of comprehensive data-communication system enabling interchange of information electronically;
- a PS can be viewed as a basic or complex service.

Improvement of PSs means that services are of high quality, cost-effective, transparent, secure, and accessible (EC 2005). Services possessing the mentioned characteristics contribute to establishment of well-implemented eGovernment which enables citizens and businesses to carry their business with government easily, quickly, with lower cost and fewer resources (EC 2011). However, significant problems impede development of such services.

3. Problems

The EU promotes the single (internal) market (http://ec.europa.eu/internal_market/ index_en.htm) and citizens and businesses use its freedoms. They usually need some documents/information for work, mobility, etc. not only in their country, but also abroad. For this purpose, they contact PA. However, in Europe, the provision of PSs is still often rather fragmented and people have to go from one "counter" to another (whether physical or on the web) (EC 2003). Therefore, citizens and businesses must know departments involved in provision of services and the whole process of receiving a specific service. In this light, companies and citizens would much benefit from borderless online environment (EC 2010f) for receiving the necessary services, but the set of e-barriers create obstacles for its creation. E-barriers include 1) fragmented digital markets; 2) lack of investment in networks; 3) lack of interoperability; 4) lack of skills; 5) fragmented answers to societal challenges; 6) insufficient research and development; 7) rising cybercrime and low trust (EC 2010f). They fragment and hind from proper functioning the internal market (EC 2010b) having effects on openness and competitiveness of EU markets (EP 2009). Moreover, PSs operate in complex environment where there are current legal, cultural, linguistic, administrative differences of EU countries and dynamically changing legislation, needs of businesses and citizens, organizations of PA, and business processes and technologies (EC 2010b). Modernization of PSs in Europe should be achieved by avoiding creating barriers to the internal market (Deloitte, 2010). This is possible by providing interoperability, promoting commonly agreed IT solutions, and ensuring appropriate governance (EP 2009).

4. Interoperability

Interoperability is a prerequisite and facilitator of efficient delivery of PSs (EC 2010b). In the context of eGovernment, it is characterized in the following way (EC 2003, EC 2010b, Tambouris et al 2007):
- it is the ability of disparate and diverse organizations to interact;
- the interaction is needed for achievement of mutually beneficial and agreed common goals;
- the interaction involves sharing of information and knowledge between the organizations;
- the sharing occurs through the business processes of the organizations;
- the sharing occurs by means of the exchange, process, and correct interpretation of data between ICT systems used in the organizations;
- the interaction can happen between organizations of different levels: national, European, sectoral, etc.

Figure 1 displays the main parties involved in provision and usage of PSs. EU administration is the main regulator and facilitator of initiatives related to development of PSs and making them interoperable. PAs are the prime partners in development of PSs, but citizens and business are the main recipients of services developed. The main beneficiaries of interoperability and benefits they gain are shown in Table 1.
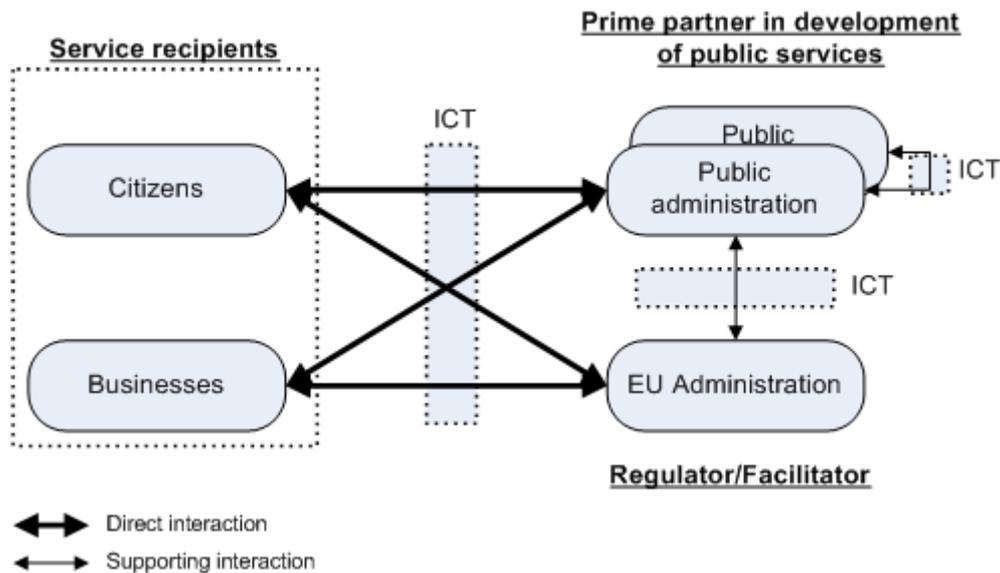
Figure 1: Parties involved in development and usage of PSs

Table 1: Beneficiaries of interoperability (Deloitte 2010, EC 2010b, EC2010c, EP 2009, EC 2006a, EC 2006b)

Beneficiary	Benefits
EU PAs and Commission	• efficiency when establishing PSs; • greater awareness of the risk of creating new e-barriers; • cooperation which facilitates the exchange, sharing, and reuse of information.
Citizens and businesses	• efficient and effective delivery of PSs across borders and sectors; • reducing costs; • preventing duplication of efforts; • reducing the administrative burden.
EU as a whole	• contribution to the achievement of the Lisbon goal; • more efficient implementation of EU policies and initiatives; • fostering the enhancement of the common market; • support of the economic integration of the countries and the consolidation of the internal market.

Typically, two types of interoperability are considered (EC 2010b):
- cross-boarder or interoperability between different national or organizational boundaries;
- cross-sectoral or interoperability between different sectors of economy.

5. EU policy and practice

Interoperability issues have to be seen in the context of other current EU initiatives. In 2010, the EU accepted the Europe 2020 Strategy for Europe growth and jobs. One of its initiatives is related to improvement of the EU's performance in education, research/innovation, and digital society (EC 2010a). Digital society calls for the Digital Agenda for Europe which aims to deliver sustainable economic and social benefits from a digital single market based on fast and ultra fast internet and interoperable applications (EC 2010e). Interoperability is considered in 3 pillars of the Digital Agenda: "Digital Single Market" (action 8), "Interoperability and Standards" (actions 21, 24, 26, and 27), and "ICT for Social Challenges" (actions 76-77, 83-88, 89-91).

In the eGovernment Action Plan (EC 2010d), the action "2.4. Pre-conditions for developing eGovernment" is directed towards the promotion of interoperability through open specifications and the development of key enablers. Another action "2.2.Internal Market" supports the internal market through development of seamless services for businesses and citizens.

Two key elements of interoperability are the European Interoperability Strategy and the European Interoperability Framework, which both were accepted in December 2010 (EC 2010b). The strategy

aims to provide guidance and to prioritise the actions needed to improve cooperation among European PAs for the delivery of PSs. The framework includes recommendations for PAs, underlying principles, conceptual model for PSs, four levels of interoperability, the concept of interoperability agreements, and the governance of interoperability.

In order to identify the main information sources on interoperability aspects, the following steps were undertaken:

1. identification of initial information sources by studying materials available at http://europa.eu;
2. analysis of the initial information sources and fixing additional sources referenced in initial ones;
3. searching and analysis of additional information sources.

As a result, the information basis found includes:

- Ministerial eGovernment conferences -2011, 2009, 2007, 2005, 2003, 2001;
- Ministerial declarations:
  - Granada – 2010;
  - Malmö – 2009;
  - Lisbon – 2007;
  - Manchester – 2005;
  - Como – 2003;
  - Brussels – 2001;
- EU action plans:
  - The European eGovernment Action Plan 2011-2015, COM(2010) 743;
  - i2010 eGovernment Action Plan, COM(2006) 173;
  - eEurope 2005: Action Plan, COM(2002) 263;
  - eEurope 2002 and eEurope+ 2003 Action Plan;
- EU programmes on interoperability:
  - ISA;
  - IDABC;
  - IDA I and IDA II;
  - MODINIS;
  - eTEN and CIP ICT PSP;
- Communications:
  - COM(2010) 744;
  - COM(2010) 245;
  - COM(2010) 2020;
  - COM(2006) 45;
  - COM(2005) 425;
  - COM(2005) 229;
  - COM(2005) 24;
  - COM(2003) 567;
  - COM(97) 503;
  - COM(97) 157;
- Directives:
  - INSPIRE Directive 2007/2/EC;
  - Service Directive 2006/123/EC;
  - Public Procurement Directive 2004/18/EC;
  - Public Sector Information Directive 2003/98/EC;
  - Electronic Signatures Directive 1999/93/EC;
  - Standards Directive 1998/34/EC;
- Reports:
  - "European Interoperability Architecture (EIA): Common Vision for an EIA" (2011);
  - "European Interoperable Infrastructure Services" (2009);
  - "Key Principles of an Interoperability Architecture" (2004);
  - "Architecture Guidelines for Trans-European Telematics Networks for Administrations" (2004);
- Large scale pilots:
  - eCODEX;
  - epSOS;
  - PEPPOL;

- SPOCS;
- STORK.

6. Conclusions and future work

Interoperability of PSs is contributing directly to the achievement of the goals of the Digital Agenda for Europe and the Europe Strategy 2020, therefore it is vitally to delivery knowledge about its issues, historical dimension, legal base, and the current state to all parties directly or indirectly involved in development of eGovernment in the EU. The necessary knowledge can be acquired from a huge set of information sources identified in this paper. In future, it is planned to study the identified sources and to produce a report concerning EU policy and practice in the area of interoperability.

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