Bringing Together and Accelerating eGovernment Research in the EU

Policy Issues in eGovernment

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Executive summary

eGovernment, when viewed as a research field, exhibits a strong correlation to policy. In the present document we refer to gaps identified in the application of eGovernment throughout Europe as perceived by FP6-funded studies and actions. In fact, the mere persistence of these gaps despite advances in technology is a direct manifestation of the complexity of eGovernment as a multidisciplinary field. It is here that research into the causes and remedies of these shortcomings has a distinct role to play.

We then address the gaps arising within the research conducting process itself, including research programme management. Additionally, we examine the factors influencing the dissemination of research results to the eGovernment policy and practice. FP6 studies conducted by experts provide fruitful conclusions on the state and possible strategic options for eGovernment research and policy in Europe. Recent findings on policies and practices in Europe show that although research in eGovernment has recently gained in recognition and consolidation, it still remains fragmented even within the Member States.

We subsequently review eGovernment policies and strategies as implemented and endorsed by European countries that appear at the top of the 2008 UN rankings. Priorities, such as customer-centric services, provision of multi-channel services, issues on handling, use, transfer and share of data, as well as concerns on eInclusion seem to be common among those states. We also take a brief look at the international scene in terms of policies; there we still observe that customer’s satisfaction, established through efficient channels of high-quality service provision, also appears as being the utmost priority.

Finally, FP6 studies note that the present structure of research programmes and funding in Europe act as a "bottleneck" between policy awareness and research effort. At policy level, eGovernment research is mentioned as an important application field of IST research. At the same time, in the research community, there are increasing research activities on eGovernment. Despite this, only a minority of countries have a dedicated eGovernment research programme, and the budget devoted to eGovernment research appears relatively low.
Table of Contents

Executive summary ........................................................................................................................................ 2

1 eGovernment research and policy ........................................................................................................ 8

1.1 Addressing eGovernment research and policy gaps ...................................................................... 9

1.1.1 Networked governments .............................................................................................................. 10

1.1.2 Legal frameworks ....................................................................................................................... 10

1.1.3 Changing power structures and new government roles in the virtual world ................... 11

1.1.4 ICT innovation in governments and ubiquitous government systems .............................. 12

1.1.5 Towards pan-European standards & interoperability ............................................................. 14

1.1.6 Value of ICT-investments and ICT-dependency ......................................................................... 17

1.1.7 Goal-oriented, value-added public service provision ............................................................... 18

1.1.8 Free movement of citizens and companies ............................................................................... 19

1.1.9 Government’s (re)action to socio-demographic change ......................................................... 19

1.1.10 New technologies for automatic monitoring and surveillance for security ................. 20

1.1.11 Advanced technology in crime prevention and crisis management ................................... 21

1.1.12 Securing transparency, trust and data privacy ....................................................................... 21

1.1.13 Access for all in an inclusive society ...................................................................................... 22

1.1.14 eParticipation .......................................................................................................................... 29

1.1.15 Identity management ............................................................................................................... 30

1.1.16 Public-private-civic relationships in public service provisioning ....................................... 33

1.1.17 Changing public values ............................................................................................................ 34

1.1.18 Full online availability of public services .............................................................................. 35

1.1.19 Information availability, retrieval and knowledge management ........................................ 37

1.1.20 Information quality ................................................................................................................. 38

1.1.21 Summarising the Gaps ............................................................................................................ 38

2 Gaps in the eGovernment research process ......................................................................................... 41

2.1 Absence of an organisation and research management infrastructure ..................................... 42

2.2 Lack of definition of a long-term eGovernment vision and strategy ......................................... 43

2.3 No clear definition of users and stakeholders ............................................................................ 43

2.4 No clear correlation between different types of research ......................................................... 44
List of figures

Figure 1 Exchange of certificates among government bodies (adapted from eMayor) 16
Figure 2. The Partnering Continuum 34
Figure 3. Areas affected by user needs (adapted from eUSER) 36
Figure 4. Final influence model diagramme (WEB.DEP) 67
Figure 5. Simplified structure of the WEB.DEP forum (see ref. 90) 68
Figure 6. Key issues for the creation of eGovernment in the US 74
List of tables

Table 1 Gaps in eGovernment to be addressed by research (adapted from eGovRTD2020) 40
Table 2. Scenario template (WEB.DEP, see ref. 89) 65
Table 3. Lists of tasks for scenarios (WEB.DEP, see ref. 89) 66
1 eGovernment research and policy

Perhaps more than any other area of IST research, eGovernment is ultimately connected to policy. Indeed, while policy enables the development of eGovernment and other ICT disciplines, it is only eGovernment which can have a strong effect in the opposite direction: it can affect application and even formulation of policy itself. As a consequence, eGovernment, when viewed as a research field, exhibits a strong correlation to policy.1

Analysis of the reasons for which there is a lack of research utilisation has revealed not only the limitations of research and the apparent inhospitality of the policy making environment but also the divergence of these two worlds (Walter et al, 2003).2 The research and policy worlds have different priorities, use different languages, frequently operate to different timescales and are subjected to very different reward systems.

The response to these problems has generally been twofold. Firstly, improvement in communication between researchers and policy makers and secondly establishment of better institutional mechanisms to bridge the research/policy divide.3

♦ Improving communications: Much of the focus for this approach has been on finding ways in which researchers can improve how they communicate and disseminate their findings. Walter et al (2003) found that the provision of targeted research outputs can raise awareness of research findings. Additionally, seminars and workshops, which enable the discussion of findings, can encourage more direct use of research. In Switzerland the National Research Council set aside ten per cent of research funding explicitly for dissemination work outside the academic community.

♦ Building institutional bridges: Analysts stress the benefits of sustained interaction; this inevitably leads to discussion of how this can be institutionalised within the policy process. One approach is to use policy-making guidelines to encourage early involvement of in-house and other researchers in the policy process.

The definitive projects which examine the research and policy correlation in the eGovernment area are two Actions:

♦ eGovRTD2020 (eGovernment RTD 2020), Specific Support Action

♦ eGOVERNET (European eGovernment Research Network), Coordination Action

Of those, eGovRTD2020 was completed in April 2007, while eGOVERNET was completed at the end of 2007. Both projects examine the position and the role of research within the eGovernment evolutionary process. Their findings also refer to gaps which appear in the entire life-cycle (policy-research-application) of any eGovernment development.

The objectives of eGovRTD2020 target evolution of research directions and supporting policies till the end of the next decade. As the consortium state, a modern government using innovative ICT has become an increasingly important factor of competitiveness and growth in the European knowledge society. Despite persistent efforts in this direction made by many Member States, however, most of the strategies and activities which currently take place are


3 eGOVERNET D5.1 Impact Indicator Overview
short to mid-term oriented. eGovRTD2020 aims at sketching eGovernment in 2020 and, thereby, identifying future strategic research fields for the development of eGovernment and the public sector as such. The methodology consists of both scenario building and road-mapping. Visions were described through scenarios, which detail governments, society and economics, as well as the interaction based on modern ICT. Guidelines for eGovernment research programmes and national long-term eGovernment policies were also developed at the final phase of the project. The general conclusion drawn is that research is needed so as to shape the future: nurture those developments which we want to enable, while simultaneously avoiding those which are undesirable.

On a similar note, eGOVERNET paints the current picture in the field: “uncoordinated research funding, lack of publicity and poor nation-to-nation cooperation over eGovernment research policies.” These are considered as being “some of the obstacles holding back the establishment of a European Research Area in the eGovernment domain. European eGovernment research needs to be boosted by a research strategy designed to work at European level. A vitalisation of eGovernment research in the Member States could feed the benefits of new technology directly into change in administrations.”

1.1 Addressing eGovernment research and policy gaps

A 2006 survey organised on behalf of the European Commission shows that European eGovernment policy should focus on a small number of high impact services over the coming years. Respondents to the survey on the future of eGovernment in the European Union overwhelmingly endorsed a strategic approach, with 92 per cent advocating a narrow focus on a small number of priority actions and services. The online survey of 403 EU citizens and organisations asked a variety of questions on priorities for eGovernment in Europe up until 2010.

Over 70 per cent of respondents said the most important objective of eGovernment in the EU is to improve the quality of service provision based on user satisfaction, while two-thirds said it was necessary to reduce red tape for businesses and citizens. Asked what services the EU should prioritise 65 per cent of respondents said citizens’ mobility in social services, such as pensions and healthcare.

The same percentage cited organisational barriers in the union as the main barrier against achieving these services. Participants were also quizzed on their views of the main barriers against effective eGovernment generally by 2010. In response to this, more than six-in-ten of respondents said lack of interoperability between EU states was a problem.

The survey also canvassed views on inclusiveness of online public services in the EU. Forty-four per cent said the most important objective would be to increase access and use of public services through greater accessibility. The findings of the survey broadly endorse the European principles for eGovernment, which form the basis of the eGovernment Action Plan. These include accessibility for all EU citizens and the need to highlight the benefits eGovernment can bring to high impact services such as freedom of movement of labour, goods, persons and capital.

Both eGovRTD2020 and eGOVERNET have paid attention in identifying and analysing gaps in eGovernment as such, accompanied by proposed measures. Gap analysis has been used by both projects in identifying existing practice, policy and research deficiencies. Gaps are

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4 http://www.egovmonitor.com/node/4487
defined as the differences between current and desired states of eGovernment areas. Suggested measures for bridging them are quoted by both projects.

We proceed with a brief presentation of the gaps identified in the application of eGovernment throughout Europe as perceived by eGovRTD2020⁵.

1.1.1 **Networked governments**

This gap refers to lack of readiness of governments to network among each other and to collaborate efficiently in the physical and virtual space. Current research is perceived as not addressing the challenges of large networked governments in terms of responsibilities, reorganisation of hierarchical structures and change in the distribution of power. Likewise, the role of ICT to effectively support and enable fully networked governments is not sufficiently addressed by current socio-technical research. Two factors are considered in this role:

- **Government Networks**, strongly dependent on ICT albeit with unclear organisational, operational and legislative needs and
- **Government Communities** as effective government structures of the future.

1.1.2 **Legal frameworks**

Legal frameworks are not aligned with the new possibilities enabled by ICT investments or even create barriers to effectively exploit technical opportunities. This is accentuated by a distinct, identified lack of uniform systems of laws, regulations and taxes across the Member States and by an equivalent lack of understanding, regarding the effect regulation reforms can have on modernisation and ICT innovation. Two factors are proposed as decisive:

- **Standardisation of laws, regulations and taxes** to the extent that, in the future, an increasing number of domains of government activities may consist of one part common to all EU Member States and another part applicable to each Member State.
- **Rationalisation of the legal framework for eGovernment** itself, an issue which will raise the question of whether this should be national or common for all Member States.

An example of such situations arising is certificate management services, which provide a way to satisfy the security requirements prevailing to suit the public sector operational framework. Such services were developed by the eMayor⁶ project for small to medium government organisations. The project researchers examined European directives which potentially had significant impact on security applications. Those were the directives on electronic signatures, data protection and databases protection. What they found was that there were still certain organisational, regulatory and legal requirements that have to be addressed, and which, at present, prevent small-medium public organisations from adopting certificate management.

The same problem is also addressed by the iWebCare project⁷, which is creating an initial legislative and organisational basis for the health care domain in Europe. The project has

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⁶ eMayor D2.2 Analysis related to security and PKI services

⁷ iWebCare D02 – Pan-European Survey on the Legal and Organizational Issues Associated with Fraud Detection e-Government Processes in the Health Care Domain
already identified and analysed the main legal and organisational issues affecting existing systems in the EU-25 countries.

Furthermore, iWebCare proceeded with a pilot operation of the iWebCare platform that addresses fraud in health services. Its final assessment report\(^8\) presented some very interesting assessments from field experts in non-healthcare domains. These domains include eProcurement, Registrar offices, public transportation, revenue authorities, customs authorities, and insurance. In this assessment, the iWebCare platform is considered useful in these domains as well. Around such initiatives, it is evident that better general eGovernment policies can be built, taking into account:

- The modernisation of the EU public sector;
- Improvement of the efficiency of anti-fraud actions.

These policies will result in the recovery of significant amounts of money from lost tax, duties and excise.

### 1.1.3 Changing power structures and new government roles in the virtual world

Changing power structures and new government roles in the virtual world is not well understood yet. This refers to the consequences and impacts caused by a change in the government (federal) systems across Europe, as regards public value perception, political power and competition among regions and different government systems. Issues such as the drivers for competition, the transition mechanisms and the role of eGovernment in such a scenario are still pending. Factors judged as decisive are:

- Competition among governments, regions, nations
- Delegation of more decision-making power to local government
- Globalisation
- Role of eGovernment versus that of the EU in world politics
- New types of virtual borders which may arise and the role of governments in influencing or even regulating such virtual communities
- Fragmented politics
- Integrated vs. fragmented public administration
- Flattening of hierarchies, as a result of certain levels of government (such as the EU level and local levels) becoming more powerful
- Increasing power of multinationals, something which is likely if governments prove unable to provide good, strong and balanced services using advancing technology and promoting society evolution

As also observed by COSPA\(^9\), public administrations are gradually implementing Open Source Software (OSS) in many of their units. Open Source usage generates wide-ranging

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\(^9\) [http://www.cospa-project.org/](http://www.cospa-project.org/)
changes that require time and human resources both for the switch and for helping end-users overcome their natural resistance to change. It is therefore the government's duty to:

- Guarantee free access to public information;
- Maintain the permanence of public data;
- Assure the security of public data (including that provided by citizens);
- Avoid unnecessary public spend.

Factors driving to change are stipulated by the Gleicher's\textsuperscript{10} formula, as it pointed out within the SAKE project:

\[ D \times V \times F > R \]

\( D \) : The dissatisfaction with how things are now

\( V \) : The vision of what is possible to be done

\( F \) : The first concrete steps to take in order to reach the vision.

\( R \) : The resistance to change

The multiplication inside the formula implies that if at least one of the factors \( D \), \( V \) and \( F \) is low, the product will not be able to overcome resistance to change. To ensure successful change, it is necessary to use influence and strategic thinking in order to create vision and identify those crucial steps that should be made towards that vision.

At a microscopic level, a change in one activity in a process within an organisation may cause severe problems in other parts of the same process or the system in a whole. The SAKE project\textsuperscript{11} has developed methodologies and tools to resolve such changes in a systematic manner, while maintaining consistency, by deploying supporting tools for an agile knowledge-based eGovernment, sufficiently flexible to adapt to changing and diverse environments and needs. This comes as a response to the need for an analysis of the complicated situation of public administration, which is often faced with changes in the legal framework of its activities.

1.1.4 ICT innovation in governments and ubiquitous government systems

The pros and cons of fully integrating and exploiting modern ICT in public sector applications are not well understood. There is a lack of investigating and identifying opportunities for merging different ICTs for government modernisation purposes, and for spurring ICT innovation from within governments. Furthermore, studies about the large-scale deployment of embedded chips and subsequent innovative public sector modernisation in surveillance, monitoring and prevention of crime have not been carried out. Identification of crucial non-technical barriers to the wide application of such technologies should be part of such studies. Dominant factors are as follows:

- **Non-stop-government**, continuously accessible to a massive number of users based on ubiquitous systems using a number of delivery channels, such as:


\textsuperscript{11} SAKE: D3: Report describing state-of-the-art, analysis of knowledge landscape and organisational factors, September 2006
♦ Voice control
♦ Small sized, ubiquitous wireless technologies and
♦ Sensors networks.

The application of these technology challenges in the public sector is currently not well understood, thus necessitating applied research starting with pilot case applications. This may have to be followed by further research on the way to full deployment. As eGovRTD2020 accurately conclude, this is the reason why innovation in the public sector is generally at a low level.

As observed by COSPA, governments today must be aware that the growth of an Open Source (OSS) developer base is increasingly an indicator of the innovative capacities (in the software domain) of a national economy. There are a number of reasons for this:

♦ OSS is a public resource with low entry barriers. Unlike forms of intellectual property with restricted access for re-use (through patents, restrictive copyright licensing), OSS can both quickly disseminate innovations, and provide for further development and innovation from any source without inefficient time delays or other costs.

♦ Second, OSS is an excellent training system that comes at no direct cost to society, i.e. neither public subsidies nor future employers need to pay directly for the training provided to (often novice) programmers through their exposure to source code and the Open Source developer network. This is implicitly recognised by employers, who may prefer prospective employees who have worked on Open Source projects, explicitly recognised by developers themselves, who join the Open Source community “to learn and develop new skills”.

♦ OSS is by its nature an automatic source of de facto standards for any number of protocols or systems, both historically as well as those being developed today.

As an example of innovations available to governments, we mention the results of two projects in FP6.

The eMayor project mentioned above performed the first large scale set of trials to achieve interoperability among European municipalities. The technologies developed and reworked for these purposes address new ways of handling digital forms, the implementation of security enforcement module, the handling of language issues in cross border eGovernment and the integration into one adaptable and easy to implement eGovernment platform. eMayor is a lightweight implementation of a full eGovernment platform that fulfils future requirements of exchange of documents between stakeholders and works for users without coding.

Actually, eMayor was among the first projects to show how one can practically solve the cross-border interoperability challenge, without making use of a centralised architecture. As such it may form the basis of a number of applications serving mobility in Europe. Apart from the local advantages for municipalities and other smaller government organisations this solution is considered by the consortium as a real possibility to work on politically important priority actions.

The ALIS project eases access and use of legal systems by devising a methodology and a software system which facilitate compliance with the existing legal framework. This can improve consistency and avoid conflicts in law making and resolution of disputes. A multidisciplinary array of advanced technical tools is used ranging from law to knowledge
bases to computational logic to artificial intelligence to game theory and finally software engineering\textsuperscript{12}.

The European Commission has addressed the issue of innovation at the level of policy already from 2006, as presented by the DEMO-Net\textsuperscript{13} project. Particular emphasis to the role of governments has been placed. The national governments should pioneer in the adoption of new technologies and innovative procedures in order to provide better and more effective public services. DEMO-Net also underlines the significant under-exploitation of ICT technologies in EU generally and in the public sector in particular.

In this direction the CIP “is seen as a key element in improving innovation performance and competitiveness through the uptake of ICTs by both the private and public sectors”\textsuperscript{14}.

1.1.5 Towards pan-European standards & interoperability

In any management process, lack of information exchange can have a severe impact on successful service completion and effective communication. For this purpose interoperability at a technical, semantic and organisational level must be ensured. However, some common European eGovernment ontologies and an agreed-upon European eGovernment glossary have not been established yet, something which creates barriers to semantic interoperability of systems. Factors considered important are:

- **Interoperability standards** and the complexity of providing organisational, semantic and technical interoperability across systems in a pan-European dimension are still not fully resolved issues.

- **Central EU eProcurement** has not been achieved yet, as this requires rationalisation of procurement processes of Member States’ practices and laws.

- **Interoperability among cultures and government systems** in society and the diversity of EU Member States are key issues in terms of “Europeanisation” and European citizenship. Social and cultural interoperability of public services (thereby respecting cultural diversity across EU Member States) is currently not well-understood.

- **Peer-to-peer communication** models and their impact on interconnectivity between existing ICT systems and eGovernment efficiency

- **Service-oriented architectures** (SOA) bear a great potential, however, their full implementation in government networks is still missing and demands more research.

As eGovRTD2020 remarks, once immediate interoperability problems are solved, the emphasis will shift from technical and semantic interoperability to cultural interoperability, an issue which although currently overlooked is decisive for the formation of a powerful European society and market.

The Manchester Ministerial Declaration has proposed ambitious objectives by 2010: At least 50% of public procurement which lies above the EU-wide public procurement threshold must

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\textsuperscript{12} ALIS: D9.5 Report on a the homogenization of the vocabulary used by ALIS consortium and standardization, 2006

\textsuperscript{13} DEMO-NET Deliverable 11.4: “Assessment of the eGOVERNET strategies for integrating eParticipation into innovation and implementation programmes, and consequent recommendations for DEMO-net” p. 8 at http://www.demo-net.org/what-is-it-about/research-papers-reports-1/demo-net-deliverables/pdfs/d11-4.pdf

\textsuperscript{14} ibid., p. 9.
be carried out electronically. Also all public administrations across Europe must be able to carry out 100% of their procurement load electronically. To be fully applied, eProcurement will need basic support at European level, on issues such as identification, authentication and interoperable electronic signatures. Interoperability of company registers across Europe is an even more challenging issue, currently administered by chambers of commerce. On the technical side, secure web services which allow exchange of company registration between government organisations and authorised registration authorities appears to be a promising technology.

The subject is treated by the BRITE project in FP6, which addresses interoperability of business registers throughout Europe. To achieve this, semantic technologies are used to capture different business register infrastructures, which exist in the Member States as a result of differences in legislation and culture. Based on a model of data and processes, communication and collaboration of business registers are expected to be considerably improved. BRITE not only addresses cross-border, multi-national issues of collaboration, but also targets national, inter-domain interoperability, i.e. between business registers and government institutions. Four implemented pilot cases demonstrate the success of the adopted approach. The BRITE proposed solution in this process results in fully dynamic, semantically rich, code-based communication through the use of a new language, brXML, which adopts good practices of crXML. Using brXML it is possible to formulate queries and get results from different business registries. This can be achieved through the use of a common representation for information belonging to the Business Registry domain.

Regarding standards, agreement among Member States is paramount. As the eMayor researchers point out, a lot depends on whether such common standards follow the de facto standards used in practice. Should this become true, then implementing a service for cross-border usage is realisable with open source tools, such as those used for the eMayor platform, for example. As a matter of fact a similar architecture, allowing for the use of different eID mechanisms across Europe may be implemented without the need for any (huge) centralised system. The figure below shows the actors that might be involved and the type of information exchange that can be realised via a light-weight, non-centralised platform such as that of eMayor, which allows for the exchange of translated certificates among smaller government organisations.

Another example of FP6-created answers to standards and interoperability is the field of eCustoms. There, ICT can offer answers to the paradox of increasing security and control over international trade, while at the same time reducing the administrative overhead of commercial and public organizations. The ITAIDE project provides a set of development tools at technical, procedural and network level to enable implementation of the Single Window and the Authorised Economic Operator (AEO) concepts in practice. The project uses practical building blocks such as standards, interoperability and value assessment as well as theoretical building blocks such as control procedure redesign and network collaboration.

Proof of concept is provided by four Living Labs (such as the Beer Living Lab), which demonstrate how a new electronic customs procedure can make a number of documents and systems (which companies used for reporting to the authorities) obsolete. For example, in the paper-based procedure, companies need to provide numerous documents to prove that goods have left the country; in the Beer Living Lab redesigned electronic procedures, such paper documents are no longer needed. They have been replaced by an electronic proof of location information, which is automatically generated by a tracking device (TREC) when goods leave the country. The benefits are obvious.

17 eMayor project, Deliverable D 1.1
18 Single Window is “a system that allows traders to lodge information with a single body to fulfil all import or export-related regulatory requirements” - (DG/TAXUD, 2006, p.5)
19 Authorised Economic Operator (AEO) is a certification system for businesses that can guarantee high degrees of security and compliance with government regulations
21 TREC is a smart container seal mounted on a container that can send real-time location information about containers
1.1.6 Value of ICT-investments and ICT-dependency

The distribution and coordination of governance functions between centralised and decentralised levels of public administration are expected to change over time due to large investments in common ICT infrastructures. The issues of public administration being able to take advantage of modern ICT and of ICT being able to facilitate and enable new types of governance using public eServices have not yet been investigated properly. The dependency of governments on a proper functioning ICT services providing equipment (most probably not under the supervision of governments) is perceived as a risk, whose impact and dimensions have not yet been investigated either. There is a need for more research on the consequences of distributed and remote eGovernment applications and the governance of public eServices in general. Decisive factors identified by eGovRTD2020 are:

- **Governance and role of government in service provision** refer to the lack of properly investigated business models on in-house or outsourcing public service provisioning via effective deployment of ICT

- **New types of IT-governance** appear, which need proper investigation of the impact and consequences as well as the added value of change

- **ICT dependency.** There are currently hundreds of millions of computers connected to the Internet, generating huge volumes of traffic data per day. This infrastructure can become a target for disruption of economic activity; therefore reliability, security and robustness of the Internet infrastructure are important priorities

- **Proprietary software** used by various groups of society points to the need to integrate such solutions with current open source software with proprietary software solutions. Obstacles, challenges and benefits of both business models coexisting are not well understood.

Drawing on the proprietary software issue, Morgan (2005)\(^\text{22}\) points out that one main problem holding back the growth of Open Source software might be that while most users of such applications are technically sophisticated, the average desktop user relying on standard proprietary software is not. He frequently lacks even basic computer skills\(^\text{23}\). However the COSPA consortium feels that the apparent reduction of expense in software licenses will allow for investing more money in personnel training.

eGovRTD2020 comments on the issue of the future of Internet with respect to eGovernment and quotes T. Modis\(^\text{24}\) who predicted that, in a few years, the Internet rush will be over, because penetration will be exhausted. However, most scenarios elaborated by the project within workshops with experts foresee that the Internet will further grow rapidly and that the economic system of the EU and its Member States will become more and more dependent on Internet infrastructure, ICT and applications. Such systems will run most public and private services, something which generates substantial dependency on the proper functioning of this infrastructure for all sides of actors – private, public and civic. Research must be carried out on the various aspects affecting measurement and reliability of Internet infrastructures.


1.1.7 Goal-oriented, value-added public service provision

The questions posed here are on how governments can reform themselves from within, which reforms are needed, and for what benefit. Cost-benefit analyses need to accompany the service portfolios of governments – both, for traditional service provision as well as online offers. Main factors to be considered are:

♦ Centralisation of service provision at national level vs. competition in regions

♦ Centralised / decentralised storage

♦ Reform of public administration. This refers to the need to find the right cost-efficiency and public value balance of service offers at the right government level. Depending on the trends of government structures, a proper investigation of the level of service provision, the underlying mission of a public service, and the added value to be provided is required. Such studies are currently not performed.

♦ Use of ICT to redesign government structures and processes has to be examined carefully. ICT can be a driver for modernising governments. Yet, a proper goals-and-performance management has to accompany such endeavours.

♦ Local governments arranging healthcare. Rationale to govern healthcare at the level of local government versus benefits and difficulties resulting from the absence of central coordination.

eUser experts provide insight on this centralisation–reform gap drawing on Sweden’s example. Sweden is a centralised state: it has centrally managed authorities and agencies that have responsibility for almost all government services. Apart from the central administration, Sweden is divided into 19 counties run by county councils, whose main responsibility is health care. There are also two regions and one municipality with similar roles.

The Government’s Action Plan, titled ‘Towards the 24/7 Agency’, sets out the objectives for the development of eGovernment according to the fundamental values of democracy, rule of law, and efficiency. The plan lays the foundation for significant reform of public administration and states that public administration must supply eServices in such a way as to deliver maximum benefit to citizens. Barriers that hinder implementation and uptake of eGovernment services include:

♦ Technological and administrative barriers. The vast majority of all administrative procedures require a hand-written signature from the user. This will need to be replaced with digital signatures if transaction eServices are to expand. Other barriers include the need to provide documents that are only available in hard copy and the requirement for supplementary information from other agencies in the absence of a common IT platform.

♦ Legislative barriers. Existing laws are out-of-date and do not cover the requirements of ICTs. Many laws were designed to cover individual agencies and are not applicable across agencies.

♦ Organisational barriers. Processes and systems involving several agencies are complex and difficult to manage. Costs and responsibilities for services and projects have to be divided between the agencies. There are also cultural differences between agencies that render co-operation problematic.

25 eUser – Workpackage 5: Synthesis and Prospective Analysis D5.1: First Synthesised Inputs to Knowledge Repository, Including Initial Survey Results and Good Practice Examples
Integration of eServices is the most sought after technical goal for governments undergoing transformation. We still have no inexpensive and holistic solutions, but FP6 research has widely addressed the issue, especially through projects such as SmartGov, Terregov, ONTOGOV, eGov-Bus, Access-eGov, SemanticGov and OneStopGov. As has been observed\(^\text{26}\), the majority of these projects share the same participants, indicating the relevance and the connectedness between them. Integrating government eServices is intrinsically connected to EU integration, a very important political issue with consequences on the continent and worldwide. Moreover, integration of government eServices is important to society, on micro level, since it is closely related to enabling interoperability. Interoperability is, in turn, directly related to transparency of government activities, which is a prerequisite for an advanced democracy. For these reasons, we expect eServices integration to continue being the focus of the research community in the years to come.

1.1.8 Free movement of citizens and companies

Current eGovernment research and strategies do not cover the challenges eGovernment will have to face when European citizens and companies continue moving from country to country in increasing numbers. Factors considered important in this direction are:

♦ EU-expansion
♦ “Europeanisation”
♦ The disappearance of geographic borders, when European citizens and companies become more mobile and “Europeanisation” increases. Likewise, the EU-expansion policies have to be carefully investigated in terms of consequences for eGovernment structures both in new Member States as well as ‘old’ Member States. Factors such as diverse languages, national laws, level of economic and ICT development, dominant culture, etc. have an impact on interoperability and compatibility with already established EU circumstances. These impacts are currently not well understood.
♦ Competition among governments, regions and nations as a consequence of those developments.

1.1.9 Government’s (re)action to socio-demographic change

Socio-demographic changes like massive migration of workers, ageing, lack of workforce and other disturbances of the environment such as religious wars and tensions might result in a disruptive environment and constitute concerns shared by many countries and politicians. Important factors isolated are:

♦ Problems with social security and pensions
♦ Cultural convergence and slowdown
♦ Old people rule, as a result of an ageing population
♦ Immigration
♦ Ageing

♦ Religious wars and conflicts.

Demographic changes and tensions might result in a disruptive environment. Respective policies to deal with such factors are missing, although most of the socio-demographic changes can hardly be contained by governments directly. Nevertheless, proactive measures to prepare for such changes are required, such as new types of services for the elderly, exploration of technology to ensure that cultures understand each other and rapid reactions to events disturbing stability. The impact of these socio-demographic influences on the future is barely understood, and cannot be assessed by current methods and means.

1.1.10 New technologies for automatic monitoring and surveillance for security

There is a lack of understanding of the potential and impact of new technologies in monitoring, tracking and surveillance of persons, communications and goods by governments. Modern ICT and built-in devices open many opportunities for data gathering, its use and provision. Advanced sensors, RFID chips and image/voice recognition technologies enable automatic monitoring and sophisticated surveillance. Can governments take up the advantages of new technologies for the purpose of providing advanced security and safety, and to provide these public duties more effectively and efficiently? Factors affecting this issue have been singled out as:

♦ Automated monitoring and enforcement, which refers to gathering of personal information and using it legally under particular circumstances

♦ Embedded chips and implanted technology devices

♦ Remote monitoring for law enforcement, crime detection, healthcare etc.

These are all possible scenarios for identification, authentication and authorisation procedures for which questions such as legislative barriers, social consequences and public value have to be answered. Limited freedom can be the result and can impair any freedom eGovernment may try to offer, such as freedom of speech through the Internet.

It is common practice, in Government Interoperability Frameworks, to specify different levels of assurance of authentication required in relation to different eGovernment application contexts. Most Member States have very similar definitions of these, and an attempt at an EU consolidated view has been derived in the IDA Authentication Policy 27, which defines them as:

♦ Level 1: Minimal Assurance
♦ Level 2: Low Assurance
♦ Level 3: Substantial Assurance
♦ Level 4: High Assurance

GUIDE 28 provides a wide range of authentication mechanisms per assurance level. Furthermore, it is assumed that the assurance level not only dictates the authentication mechanisms that can be used, but also defines the level of identity verification required at registration (e.g. whether face-to-face registration is required). It also defines the general level

28 GUIDE D1.2.1.B – Identity Interoperability Services Report: Core Services Descriptions
of security surrounding the associated identity provider and the network, including encryption of both stored and in transit identity data.

1.1.11 Advanced technology in crime prevention and crisis management

The opportunities new technologies bear for terrorism and crime in the virtual world and in the real world by effectively coordinating crime via ICT are not well-understood. Also, a lack of understanding of the potential of ICT in crisis management and emergency recovery has been identified. The question is how the executive body and rescue teams can benefit from the advantages of new technologies in order to enable government activity to be more effective and efficient. Factors identified as important in this respect are:

♦ Crisis management. Proper response to crisis demands strong pan-European collaboration among government agencies and other private or civil emergency teams. There is a strong need in creating first response systems to deal with coordination of multi-national efforts to prepare, respond and recover from any kind of disaster situation.

♦ Cyber wars and crimes demand accelerating development of core infrastructures and Internet security protocols as well as monitoring concepts for managing emerging risks and increasing complexity.

♦ Incident politics express the need of proper governance models for governments to act and steer correctly and effectively when incidents happen, e.g. terrorists attacks, bio attacks, natural disasters.

Current research relates to how public agencies can cooperate in real time to react immediately to all kind of wars and conflicts, both at an operational and at a policy level. The exchange of information requires interoperable systems among all those involved, including hospitals, fire departments and private companies. Simulations and games are necessary to find the problems in current plans and to improve infrastructure and interoperability of systems. Although crisis management is an established field on its own, different kinds of crisis situations are expected to appear in the future. Research therefore should also focus on related domains such as psychology, societal and institutional issues, law and economic conditions.

1.1.12 Securing transparency, trust and data privacy

There is a need for better understanding conditions of access to data and use of these data so that the rights of citizens and organisations which are guaranteed by law are protected and enforced. Proper analysis of the contexts in which government can legitimately use ICT to provide value-added services is lacking. Ways to create value out of public information produced by the various administrations or public organisations does not seem to have been the object of systematic study. Factors affecting the issue are:

♦ Data access and regulations for access through the Internet. Such regulations are still in their initial stage and have to be enhanced

♦ Digital rights

♦ Information access and transparency

♦ Intellectual property

♦ Information ownerships, referring to challenges in order to set up a common regulatory framework which is transparent, recognised, enforced worldwide and which provides the
respective data privacy and rights of (intellectual) property in the virtual world. Restrictions and requirements to overcome these gaps need extensive and careful research.

- Transparency, which is identification of public data and services, and open information as to who has access to, and who uses one’s private data or (intellectual) property are preconditions for trusted governments. Comparative analyses of the legal texts related to transparency and data access, digital rights and information ownership seem to be lacking. Furthermore, generating added value out of public information does not seem to have been the object of systematic studies.

- Privacy and security should be considered in these contexts from different points of view: psychological, societal, legal, institutional and economic aspects of using ICT to provide an acceptable balance between security control and privacy protection.

- Legitimacy and trusted state and politics in the decision-making process. This tackles eParticipation issues and assurance of trust in governmental institutions.

The QUALEG\textsuperscript{29} project provides a “policy lifecycle management” software solution to promote transparency of local government and improve the citizen’s perception on the issue. On a similar note, advanced technologies exploited by the HOPS\textsuperscript{30} project produce citizen-centric services, which are fully personalised to respond to each user’s own, individual reality.

An example of a recent initiative to gain transparency and to provide a better online service is the Barcelona’s Citizen’s Folder service, which is used as a pilot application site by the project. The new service has been designed to personalise citizen’s access to public services whilst facilitating complete transparency of access to all citizen-related information and services. The interface centres entirely on the citizen’s perspective and allows access to all personal information held by the City Council. This information is kept permanently updated, whilst guaranteeing and fulfilling all privacy requirements imposed by legislature.

\subsection*{1.1.13 Access for all in an inclusive society}

Social and digital divides, reaching and involving people, and providing high-speed access to the virtual world and online public services are ongoing problems. Ideally, everybody should have the same facilities and ability to interact with government, but even in the future this might not be true. Although there is plenty of research in this field, the divide remains a problem and appropriate measures to address and solve social and digital divides are still immature.

In most study cases, it is implicitly assumed that all people have a minimal level of ability to use technology to communicate with government. Only in the case of distrust in government citizens may refuse to communicate. The social divide is mentioned much more often, residing between those skilled and those not skilled and between those who have and those who have not.

Optimal exploitation of online public services is important for both competitiveness and social reasons. Competitiveness benefits can be achieved through efficiency and effectiveness gains, through increased human capital and through achievement of market share in the increasingly global markets in some of the domains (e.g. eLearning and eHealth).

\textsuperscript{29} http://www.qualeg.eupm.net/my_spip/index.php
\textsuperscript{30} HOPS D21 – User Requirements
gains can be achieved by improving access to and quality of public services and by reducing disadvantages posed by constraints in time and place that may arise in relation to more traditional modes of service delivery.

On the other hand, there is a risk that the increasing provision of online services may accentuate existing disparities in service access and usage, caused by enduring divides. For this reason there has been a growing policy emphasis on multi-modal access to key services, to include online, phone-based (person-to-person, call-centre based or automatic voice response) and more traditional face-to-face contact. So far, however, there is little robust data available on service user preferences as regards particular modes of access under particular circumstances. This is another gap that the eUSER project tries to fill.

As regards first order digital divides, the results from eUSER are generally in accordance to those from other studies, with clear digital divides being found in relation to age, education and various socio-economic factors. Three key barriers to Internet take-up are apparent (namely lack of interest, costs and lack of skills) as well as more generalised negative attitudes to technology. When these are taken into account the divides along socio-demographic lines reduce, in some cases quite substantially.

In addition to reinforcing the results from other studies, the eUSER analysts also provide some added-value to our understanding of the factors that underlie prevailing digital divides in Europe. In particular, the multivariate analyses represent one of the first efforts to understand how the different socio-demographic factors, attitudinal factors and more tangible barriers are associated with Internet usage and with the likelihood to become an Internet user in the relatively near future. Some new factors that have hitherto not been given much attention have also been identified, such as the importance of having access to someone who can help with getting started with computers and the Internet. Interventions are therefore needed that target both the user-side (to increase interest and skills) and the supply-side (to make ICTs and Internet access more available and affordable, and to provide support to those who have none available within family or social networks).

As regards issues relating to second order divides, the survey data indicates that Internet users vary widely. There was evidence of socio-economic divides, with Internet users in less advantaged circumstances being somewhat less likely to have home access and broadband connections. This means that they are not heavy Internet users, but more likely are leisure-oriented with limited online skills. Larger differences were apparent across age-groups, however, and there were also considerable variations across countries. These factors, in turn, explain the variability of patterns of usage and non-usage of eHealth, eLearning and eGovernment services. Interventions aiming to increase digital skills and encourage an orientation towards constructive usage of the Internet should therefore be an important element of public policy in this field.

Within the context of the eLOST Specific Support Action, experts focused on eGovernment projects which addressed the specific needs of Low Socioeconomic Groups (LSGs). An interesting example they quote is the INTELCITIES project which has dealt with LSGs, such as elderly citizens in Siena, Italy. In the Siena experiment, a special “set-top-box” for interactive TV (with fibber-optic cable connection) was developed, to allow an easy interaction of the elderly citizens with different services offered by the municipality of Siena.

An important observation that emerged from this experiment was that a critical factor for success, perhaps more important than the technology used, is how to attract the citizens to

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31 eUser – Workpackage 5: Synthesis and Prospective Analysis D5.2/D5.3: Report on current demand/supply match and relevant developments
overcome their reluctance in using the available services. The solution adopted in the Siena experiment was described by the researchers as the “Trojan horse”: Elderly citizens were offered a free video-on-demand (VOD) service, centred on the “Palio” horse races – a major attraction in Siena.32

Some policy implications about the penetration of ICTs in LSGs were also presented in the eLOST Workshop in Brussels33. It was argued that mere access to new technologies is not enough, since this may widen the digital divide and reduce necessary human assistance. But if properly selected and adopted, new technologies may ease the usage of eGovernment services, especially for persons lacking “digital skills”. Since Digital and/or interactive (iTV) will be most likely installed in nearly every household, policy makers should pursue its utilisation for eGovernment. Research should focus on understanding the advantages and limitations of iTV for eGovernment use by LSGs, while lessons learnt from iTV projects in Italy and elsewhere should be properly assessed.

The eLOST project resulted in a number of policy recommendations in order to support an inclusive society with respect to ICT. These recommendations “are related to the major findings in ELOST project. The recommendations address the main barriers that prevent LSGs from using e-Government services. Once these barriers are removed or mitigated, it is expected that uptake and usage among LSGs will increase more rapidly.” 34 The recommendations from the eLOST project can be summarised in the following lines:

1. **Changing attitudes:** One of the key findings of ELOST project concerns attitudes towards the Internet and e-Government. Negative attitudes are one of the most potent barriers on e-Government use by LSGs. ELOST considers that human assistance (such as family members, social workers, public officials, and volunteers) is one of the most important factors that can support the attitude against Internet and e-Government services. The following recommendations may be helpful in this respect:

   a. **Performing studies** on processes of attitude change among LSGs is needed, with emphasis on human intermediation. Human intermediation may play a different role in different groups.

   b. **Identifying a cadre of human intermediaries** (change agents and opinion leaders) that may be recruited to educate and assist LSGs in their communities. Developing an education program for human intermediaries is essential (train the trainer).

   c. **Developing a strategy and work plan** for using human intermediaries (including an incentive system).

   d. Special consideration should be employed by governments to use different schemes for educating LSGs in **issues of safety and privacy**. This will encourage them to consider e-Government transactions as safe.

   e. **Incentive systems:** creative motivating means and incentives (monetary or not) should be explored taking into account specific characteristics of various LSG types.

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32 ELOST, WP4: Foresight Study, Deliverable D4.1: Review of foresight studies and emerging technologies, Deliverable D4.2: Technology-related questions for ELOST surveys


2. **Increasing awareness levels**, especially to LSGs who use the internet but do not use e-Government services. In addition, special focus must be paid to the elderly who are the least likely to use computers and provide them with services through other channels. Building and maintaining high level of awareness levels of e-Government services among LSGs is recommended using the following steps:
   
a. The study of **media habits** and information channels of LSGs can provide the basis for awareness building campaigns. This could include examples of best practices in this area.

b. **Development of awareness building campaigns** intended for LSGs that employ techniques that are efficient and appropriate for the target audiences. According to ELOST focus groups analysis, e-Government sites/services should be advertised more actively on television. It is important that awareness campaigns focus not only on the products but on the benefits for the user. E-government sites should be reorganized accordingly.

c. **Long term planning** is needed in this area, including setting future goals for awareness levels among LSGs. It is necessary to measure and track awareness levels among LSGs over time. This will support the decisions on the frequency and content of the campaigns.

3. **Developing digital skills**: Developing digital skills education for LSGs could be carried out using the following recommendations:

a. A study of existing techniques for digital skills education should precede other activities in this area. There are several techniques for the provision of digital skills education for LSGs that are practiced in different places and are adapted for different groups.

b. Digital knowledge levels required from LSGs for e-Government use purposes may be group-specific. Older people should not be required to have the same knowledge levels as younger people. There is a need to develop digital skills knowledge levels that are relevant for e-Government use by different groups.

c. There is also a need to develop and adapt digital skills education programs for LSGs, employing various techniques. If indeed peer-to-peer education is more appropriate for the elderly, then such programmes must be developed in line with best practices in this area.

d. Finally long range planning of digital skills education for LSGs is needed, including setting future goals for digital skills levels. It is necessary to measure and track awareness levels among LSGs over time.

4. **Deploying user-friendly access options**: The two major technology-related barriers are unfriendly interfaces and limited access channels for communications. The following are recommendations with regards to the deployment of varied types of user-friendly access options suited for LSGs:

a. There is a lack of ICT and e-Government usage information pertaining specifically to LSGs. Quantitative longitudinal measures of Internet and e-Government uptake and usage among LSGs are necessary to monitor progress. Additionally, evidence of using different interfaces should be gathered, analyzed and best practices should be disseminated.

b. Research of current and future access interfaces and their suitability for different sub-groups of LSGs. This should include the future evolution of several interfaces.
and devices, such as laptops, mobile phones, and digital TV. Although considerable work has been done in this area already, there is a need to keep it up to date. E-Government applications should be tested using LSG-friendly interfaces in selected locations.

c. Development of a long range strategy, work plan and roadmap for deployment of access infrastructure for LSGs. This should include setting future goals for access levels among LSGs. It is necessary to measure and track awareness levels among LSGs over time.

d. In the near future, access options for LSGs may include multimedia stations, Public Internet Access Points (PIAPs), interactive TV (ITV), PCs and laptops, mobile phones and, if needed, human intermediaries. Creative thinking is needed in order to increase access options, particularly in places frequented by LSGs. In such places human assistance could be relatively easily available.

e. With regards to PIAPs, focus groups discussions reveal that more of them are needed. Not on the street but in community centres, libraries or other covered public spaces and linked to printing facilities and training / learning opportunities. The possibility of providing a few PIAPs in internet cafés should also be explored.

f. Based on focus groups of LSGs, quality improvements of e-Government services delivery are called for in most countries. These include:

i. The development of learning modules in the form of games.

ii. Better navigation and search facilities.

iii. Improved interfaces.

iv. Simplified language.

v. Avoidance of overloaded pages.

g. It is equally important to recognise the need of users for support. It was practically a demand coming from all citizens in all countries that it should be possible when using eGovernment to have access to a telephone and/or e-mail support line. Furthermore, it should become standard practice to provide acknowledgment of receipt replies upon the submission of inquiries or forms with a reference number for further tracing if necessary.

5. **Continue studying existing and new solutions:** It is important to continue the development of the ELOST tool e4 Wiki and turn it into a hub of knowledge on inclusive e-Government policy. The project recommends continuing the development of the e4 Wiki in the following areas:

a. Study the effectiveness of different solutions to specific barriers on e-Government use by LSGs. This can be achieved by encouraging the creation of user generated content that will specifically address evaluations and assessments of inclusive e-Government solutions.

b. Develop case studies of best practice solutions and policy measures for the LSGs in general, and for specific groups in particular.

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c. Develop new solutions in circumstances where existing solutions are ineffective.

6. **Utilising new technologies for inclusive services**: Although ICT is an eGovernment enabler, it can be at the same time a factor that widens the digital divide. Special attention should be paid to the development of new technologies trying to address the skills barrier. Interactive TV, smart cards, RFID, semantic technologies etc. are frequently mentioned as having potential impact on eGovernment.

Several studies warn of the growing ICT-led development gap between the richer and the poorer countries of the world. According to Novick\(^{36}\), the existing unequal ICT diffusion patterns is the result of market or social failures and leads to negative economic, social and political consequences. As the UN Global eGovernment Readiness Report\(^{37}\) states, the extent of this access-divide is huge and unlikely to be bridged any time soon.

According to Eurostat\(^{38}\), slight differences in using ICTs between men and women (58% and 51% respectively) is an evidence suggesting that the digital divide is not a matter of gender. This conclusion remains true across all ages, all educational levels, for citizens living either in rural areas or in populated cities. However, a FLOSSPOLS survey shows that the European Union has a significantly lower ratio of female participants than all other regions worldwide (i.e. USA, Asia, Latin America, and Africa). FLOSSPOLS provides a range of policy recommendations for the European Commission, covering local, regional and national governments. These policy recommendations aim to address the reasons why there are so few women in the production process of Free/Libre/Open Source Software (F/LOSS), and suggest measures to increase female participation within F/LOSS. Some of these recommendations follow\(^{39}\):

- Provide tangible resources to help women devote time to their F/LOSS activities.
- Foster the participation of girls in F/LOSS activities at an early age.
- Provide support for the efforts to increase female participation that are already taking place within F/LOSS.
- The European Commission and the EU Governments should use their commissioning role to encourage a greater variety of working methods in the production of software.
- Modify the criteria for the selection of software products supported by the European Commission to ensure encouragement is given to those who positively include women in technical roles or offer other means of support for encouraging girls and women to enter computing.
- Sponsor exchange programs or joint projects with parts of the world where coding is not axiomatically gendered as a ‘male’ activity.
- Create a greater understanding, through research and dissemination of projects where technological success was achieved because of diversity.


\(^{38}\) Christophe Demunter, The digital divide in Europe, Statistics in focus, Eurostat, 2005

Encourage individuals in leadership positions to recognise that people are being actively put off, not just failing to choose to participate, and that this has a long term cost to F/LOSS development.

Foster a greater role for F/LOSS in European innovation policy, and specifically in university technology transfer activities.

A brief look at the other side of the Atlantic reveals that the digital divide has also been a pressing policy issue for the US government officials. As West points out: “Not all Americans are sharing in the fruits of technology: there remain well-documented differences in access and digital literacy, with poorer people and communities of color being less likely to have Internet access or to make use of electronic information and services. Reports such as the Benton Foundation’s Bringing a Nation Online and the Pew Internet and American Life project’s The Ever-Shifting Internet Population demonstrate that there is still much work to be done when it comes to bridging the digital divide”.

Among the recommendations that appear in the UN Global eGovernment Readiness Report is the need for governments to realise the importance of providing equal opportunities for participation in the information society, as well as their commitment for an ICT-led agenda and an associated socially inclusive development strategy, aiming at empowering every citizen according to his capabilities. The use of ICTs should be appropriately incorporated in the development strategy of governments, even if this means to fully recreate and rebuild interaction between the state and the citizen so as to promote participation.

The same report sets a policy agenda, suggesting ways to move forward towards a digitally inclusive society. Some of the most significant recommendations are summarised below:

- Campaigns targeted at making the local population realise the importance and advantages of becoming part of the information society are needed.
- Governments should build and endorse coherent and strategic policies geared towards propagation of ICTs. Investing in research and development is an important step to enable growth of ICTs.
- Promote literacy and education, as it has been observed that digital divide stems mainly from citizens who don’t have access to education. To achieve computer literacy, it is equally important to have both infrastructure and human resources.
- Step-by-step guidance should be provided at all access points to facilitate users and encourage them to continue.
- Support local communities for the development of online services and networks, especially at those urban, rural and peripheral areas where penetration of ICTs is low.

eInclusion is both the first step and a prerequisite for the way towards eParticipation and eDemocracy, the pinnacle of eGovernment. We should also note here the public consultation launched by DG INFSO via the “Your Voice in Europe” website on the issue of a common European approach for web accessibility and other aspects of eAccessibility and inclusion at large. The consultation closed on the 7th of September 2008 and the results are expected to be made available in the forthcoming weeks.

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41 The public consultation on web-accessibility and other e-accessibility issues closed on 7 September 2008. The results will be published in the weeks to follow.
1.1.14 eParticipation

There is a lack of a common understanding of the concept of eParticipation and of the way it can become a successful supportive mechanism to strengthen democracies. A number of questions still remain unclear: Why has eParticipation not yet succeeded, and which policies, measures tools and actors are needed to turn it into success? Factors which are dominant in this issue are as follows:

♦ Virtual borders and citizenship. A borderless EU has not yet been realised. In the future, new virtual borders might appear and existing borders might vanish resulting in citizens becoming members of different communities separated by virtual borders. No current research deals with issues such as virtual citizenship, what kind of virtual borders exist now and may do so in the future, how they will affect citizenship and governments.

♦ Communities of Internet politics and Community Society. Despite all efforts, governments have difficulties in keeping citizens engaged in community discussions, especially on politics. On the other hand, the trend towards community building in social – and even virtual social – matters grows. Research is needed to better understand the forming of virtual communities, especially in order to reengage citizens through eParticipation

♦ ICT usage in democratic participation (eParticipation) projects has not yet gone past the pilot phase. Many countries are disappointed about the limitations of current solutions. Much of the work is fragmented and knowledge about good and bad practices, as well as lessons learnt is not shared. Evaluations of the impact of eParticipation projects have not been carried out yet. In addition, there is a lack of understanding of which indicators to apply for such evaluations of impact.

♦ High media impact of participation. The use of media to inform people about political parties, programmes and politicians requires proper understanding of the media competencies and impact assessment on the public opinion.

FP6 research in eParticipation is promoted by the DEMO-Net Network of Excellence (NoE). The aim is to advance the way research is carried out in Europe with respect to quality, efficiency, innovation and impact to overcome the currently fragmented approach to eParticipation. The DEMO-net workshop in Edinburgh42 (June 2006) yielded a wide range of challenges and needs of eParticipation. Likewise, many barriers, obstacles and opportunities were identified. Further discussion revealed that more analysis needs to be done to improve research and development of advanced technologies and methods to understand the variety of factors influencing eParticipation. Many of those are known to the community, others have emerged during interaction with the constituency. The results at hand are a first step towards a more comprehensive understanding of the whole picture of eParticipation, something which we do not have today.

Another active example of eParticipation is in the health domain, where social networks have supported the use of health ratings in the recent years. The consumer rates hospitals, doctors, pharmacies, drugs etc in city magazines (in the USA), and he may even disseminate reports and reviews on doctor’s quality. A similar example of successful communication with patients in Europe is the PatientOpinion portal (NHS), where patients and carers are asked their opinion on hospitals’ facilities and services; they tell their stories, share experiences, express

opinions, give ideas. Managers adopting such customer participation oriented attitudes may thus replace costly controls, and be able to apply changes according to the users’ needs.

1.1.15 Identity management

In the context of globalisation, identity management becomes more and more important; in Europe, however, there is no single European identity system as yet. A worldwide unique electronic identification and authentication mechanism is not foreseeable. Instead, several heterogeneous identification systems are currently handling identification for various levels and purposes across Europe and worldwide. Electronic identity (eID) management solutions are not yet mature enough, while the impact and consequences of misusing digital identities are not yet clear. Factors considered as important in this topic are:

♦ Identity management based on biometrics, for which research is needed to balance efficiency and privacy
♦ Requirements for the establishment of a European-wide identification and authentication system
♦ Worldwide identification and authentication needs

Legal, technical and inter-organisational barriers should be identified beforehand, so that the one European electronic identity to be developed is applicable and compliant to laws and organisational preconditions. The security industry should switch emphasis from “managing ownership for users” to “empowering users” to manage their own data. In addition, worldwide identification requires thorough analysis of the implications and potential infringement of laws, privacy and basic human rights. There is a need for standardisation of the development and deployment of chips (in devices or as implants) to facilitate monitoring and collecting of information via mobile services. Current research is not properly investigating the potential and dangers of large scale unique digital means of identification and authentication.

The GUIDE project in FP6 developed an open architecture that integrates local, regional, national, and pan-European identity management services, while accommodating existing systems and requirements of member states. A critical aspect of GUIDE is engagement of the governments of the Member States in order to stimulate the political consensus and support needed to ensure realisation and political sustainability of the project in the long term.

A step further towards this direction was made in May 2008, when the launch of the STORK large scale pilot project (Competitiveness and Innovation Programme) was announced. European Commission’s “Secure idenTity acrOss boRders linKed” project is aimed at ensuring the cross-border recognition of national electronic identity (eID) systems in thirteen Member States. The goal is to facilitate the provision of cross-border online services that are already operational at national, regional or local level; the project will run for three years.

A number of trans-border pilot projects will be established. These pilots will use existing national eID systems, and some of the most useful eID services will be tested by defining a set of common specifications allowing for the recognition of different national eIDs among participants. National schemes will remain unaltered, while the new system will allow citizens to identify themselves electronically in a secure way using their national electronic identity via electronic cards or other means. Citizens will thus be able to deal with other states’ public

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administrations either from public offices, their PC or any other mobile device. The solutions developed and the experience gained will be shared with all states, regardless of participation in the pilot.

Like many aspects of digital government and other instances of applying technology to policy, common themes run through different problems, and what might address one concern could exacerbate another. On the other hand, a topic such as identity is so broad that some division is necessary so as to gain a better understanding of the overall shape of the research agenda, and then to isolate what might be considered a research priority. GUIDE experts present seven problem areas described below to serve as an organisational rather than methodological guide.

- **Information architecture and management strategy.** The overall shape of a system is an important point to isolate from lower level questions. The "back end" must be thought through, as an understanding of how different entities, public and private, will interact with the system. What identifiers will be used, where will they be stored and how will information flow throughout the system? How can secure identifiers be created from the range of failed or fragile systems now in places?

- **Privacy and personal information protection.** Apart from its priority as an important and endangered social value, control over personal information is necessary for a good identification system.

- **Governmental policies.** Assuming an ID system is at least tied to government programmes, the central administration will play a strong roll in dictating how a program will and will not be used. Inter- and intra-agency policy will need to be defined in addition to regulation of commercial actors and citizens.

- **Accountability inside and outside the system.** Abuse and fraud prevention is necessary to make sure that the problems identity management was designed to solve are not duplicated and new ones do not arise.

- **Metrics for design and evaluation.** In order to design a successful system that can be judged as being an improvement, measures must be developed to evaluate what success would look like. Identity deals with risk, and proper risk analysis requires metrics to coordinate management.

- **Implementation of infrastructure.** Any system will be used by individuals, and those individuals must interface with the system with a minimum of difficulty and a maximum of efficacy, equity and comfort. The user end of a system, however, is often one of the largest security liabilities. Again diffusion and initialisation appear to be important issues.

- **Roll-out and enrolment phase.** Systems do not magically spring into implementation, and converting from an old system to a new system always has kinks. Identifying obstacles ahead of time helps smooth the transition process. All previous steps in the planning process require consideration of rollout.

Each problem area has many independent and related research topics. The report divides these topics into six academic disciplines, although many of the issues can fall in-between or across main categories. Each discipline brings unique qualitative and quantitative tools to the study of identity.

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44 GUIDE D2.1.1.A: Institutional, political, and policy frameworks affecting IdM for eGovernment v.1
Qualitative research focuses on design principles; quantitative topics, test implementations and prescribes standards.

- **Computer Science and Engineering.** Hardware, biometric tools, cryptography and the technical side of human-computer are core issues in the development of an identity system. Of those, the cryptographic and hardware research is well supported, but there is little analysis of the policy implications of different technical choices. Qualitative research focuses on design principles; quantitative topics test implementations and prescribe standards.

- **Management Information Science.** MIS focuses on information systems, and how they are shaped. Building on computer science, it focuses more on the structure of a system, and the impact of that structure. Research areas focus on both the design aspect and evaluation of performance.

- **Organisational Science.** People can behave predictably in structured environments, and optimal identity systems require understanding these structures and behaviours. Public management scholarship has much theory on organisational dynamics and how technology can best be implemented inside an organisation.

- **Economics.** Identity affects how resources are distributed and is, in turn, affected by these resources and their distribution. The field comprises economic models, game theory and business issues on the qualitative side. There are many economic tools to evaluate the quantitative impact of policies on a large scale and on individual decision making.

- **Social Sciences.** Understanding how society behaves is critical to properly evaluating policy. A critical topic is trust, which spans traditional disciplines such as philosophy, psychology, sociology and political science. Qualitatively, the social sciences offer the ability to experiment with computer-human trust interaction. Quantitatively, we can better comprehend how the population might respond, or how segments are likely to use technologies and systems they are exposed to.

- **Law.** Significant changes to current authentication practices will implicate current legislation on individual rights, administrative responsibilities and organisational liability burdens.

The European Commission has recently (March 2009) launched in its epractice.eu website an eID community. The main goal of the epractice.eu website is to promote good practices occurring in Europe in three major fields of application of ICT:

- eGovernment;
- eHealth; and
- eInclusion.

The [EUREID community](http://www.epractice.eu/community/eureid) intends to support eID practitioners in a variety of ways:

- The promotion of eID related activities at all levels;
- Building of a community of eID practitioners;
Discussion of eID specific topics;
Finding opportunities for collaboration, networking, and joint research.

As such, the EUREID community actively supports the reduction of the gap between eID related research and eGovernment. It also supports the dissemination of information on policy and good eID practices all over Europe.

The EUREID community also provides information and a place for discussion on active relevant research projects thus promoting the active dissemination of results to all interested parties: the academia, the industry, and the public administration.

1.1.16 Public-private-civic relationships in public service provisioning

Patrick Wauters’ study is claimed to provide the only available data measured scientifically over a long period concerning the development of eGovernment in the EU and reflecting the results of the EU policy on eGovernment. The study provides information on the online development of public services, but concludes that a new EU eGovernment measurement system must change the focus from “availability” of such services, to “use” and desired positive “impact” of eGovernment programmes. To achieve such an objective, governments should seriously consider possibilities of creating partnerships with the private sector for the benefit of the citizen. Existing eGovernment research shows that governments must improve their efficiency. Outsourcing of some public services to the private sector is a possible way to transform government.

There is often confusion about the differences and similarities between partnering and outsourcing. Outsourcing implies a transfer of assets from one organisation to an external provider – a specialist, often through largely contractual measures. Yet, to outsource implies that a function is not at the core of the organisational mission – a bank, for instance, transfers the management of its payroll services to a specialised company with stronger abilities in this service area. The problem with respect to eGovernment is that digital technology becomes a strategic rather than support lever in the broader transformation of organisations to improve performance.

Outsourcing is already practiced for certain services such as water supply, public transportation, healthcare, etc. However, the level and scope of services allocated to governments and businesses is a matter of democratic decision which takes into account dominant norms in the population of different countries. There is a lack of organisational mechanisms for the efficient and socially inclusive public-private-civic relationships in public service provisioning. Factors addressed in this context are:

♦ Lean government refers to achieving maximum efficiency, effectiveness and transparency in governance of public service provisioning. Following such a model, government focuses on general issues and provision of fundamental public services, whilst basic services are outsourced to the private sector and services are provided by private parties.

♦ Evaluation and impact assessment of outsourcing are missing. Frameworks and methods for assessing the outsourcing scope of a particular public service are lacking. Incentives for the private sector to take part in the public service provisioning are unclear. Proper frameworks and policies need to be developed to enable the public sector to

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steer service provisioning by private and civic sectors and to prevent misuse and commercialisation. A notable lack of comparative legal and policy studies related to this issue exists.

The implementation of this lean governance model needs thorough analysis of the existing public services and determination of the possible range of outsourcing public services. Experiences in outsourcing of public services have to be carefully analysed in terms of legal, political and social impacts and challenges to be addressed. Based on these insights, a standard framework for activating, carrying and controlling public-private-civic relationships could also be developed.

Central to the more collaborative approach between private and public sector is the ability to foster trust between both parties. The following continuum is a useful portrait of the resulting trend away from static forms of contracting toward more partnering.

![Figure 2. The Partnering Continuum](image)

Partnering has fuelled a movement away from the traditional focus on contracting toward arrangements that are both more complex and collaborative. This shift is not an easy one, since the traditional focus of government procurement is to ensure fairness and transparency in both determining the public interest and providing accessibility for all potential private sector suppliers. Accordingly, procurement tends not to be about searching out and forming partnerships, but rather about buying goods and services in the most efficient manner possible.

### 1.1.17 Changing public values

A change of public values results in new types of relationship among individuals and governments in society. The public value perception and its change over time can have substantial impact on nearly all gaps in eGovernment policy mentioned here. For example, eParticipation solutions will only be successful if the key actors (citizens, politicians and other actors) perceive an added public value in using ICT in democratic processes. Likewise, a

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48 UN-eGovernment survey 2008 – From eGovernment to connected Governance, Department of Economic and Social Affairs Division for Public Administration and Development Management, 2008
unique European-wide digital identity will only succeed if there is a perceived public value for the stakeholders involved.

There is a lack in understanding and investigating of the user side as regards expectations of constituencies from government services, policies and state. This includes the public value of governments’ ICT investments and of online public services using taxpayers’ money. The question is how these public values change over time. One has to visualise the role of the individual in the society in future. Current research investigates privacy and security, autonomy, content awareness, employment and empowerment. Governments need to be aware that they should be able to meet public values.

However, public value is a concept barely understood. How to measure public value, when is a public service creating a public value, and for whom? A lack of proper measurement frameworks exist. The opinion and the change of public values over time might affect the potential of ICT-enabled public services as well. Public values may vary from country to country which makes comparison even more difficult. Moreover, as people can get used to things, public values might change also over time and need to be continually re-assessed. Proper frameworks and methods of analysis, comparison and assessment are lacking. Public value is an abstract concept, which although present and felt by citizens, has not been well understood so far.

1.1.18 Full online availability of public services

There is a lack of online availability of public services. Although many opportunities exist to reduce the physical interaction with governments, users are not yet convinced of the benefits of such services. The full automation of public services raises legal, social and ethical issues which should be studied. Bureaucratic resistance is likely to occur against front and back office reengineering. The methods to introduce modern ICT in public administration in order to decrease bureaucracy and to provide better [face-to-face or online] interaction between administration and citizens when needed should be explored. Factors considered as important are:

♦ **“24x7 everything”** refers to public administration services being available at all times. This objective has not been attained yet, although it remains in the agenda of most governments. Integration of various modes: the potential of converging access modes has not been exploited fully for online eServices

♦ **Multi-channel delivery and open universal access** represent opportunities for radical changes in the way government operates and interacts with its constituency. This is of particular interest with respect to globalisation and free movement within Europe, where remote access to public eServices needs to be provided.

♦ **Always present and seamless government**, operating in the background, a vision which as yet has not been realised, despite the increasing sophistication of some services. A very relevant scenario developed by eGovRTD2020 in this respect is “Ambient Government”, where new technologies for full automation of public services are judged as a prerequisite. This, in turn, calls for the investigation of legal, social and ethical issues, especially where sophisticated interaction and exchange of data between existing databases and IT solutions is required.

The eUSER (Evidence-based support for the design and delivery of user-centred online public services) Specific Support Action has addressed user needs in relation to online public services and user-oriented methods for meeting such needs. Besides eGovernment, the domains covered are eHealth and eLearning. The Action aims to:
Prepare a state-of-the-art resource (knowledge) base on user aspects of online public services, which are here understood to be “services of public interest” in the areas of public administration, health and lifelong learning.

Use this resource base to actively support various parties – the IST programme and projects, EU and national policy, the wider European research community and providers of online public services – to better address user needs in the design and delivery of online public services.

The rationale for the project stems out of the emphasis of the EU Information Society policy (as articulated in the eEurope 2005 exercise) to encourage the ubiquitous availability of online public services that meet the needs and preferences of users. That said, however, most statistical data and benchmarking of European developments in online public services have focused on the supply side. Most of the demand side studies carried out so far have not addressed user needs and experiences in depth and neither have they appraised the extent to which real user needs are being met by available service offerings. The Action fills this gap by providing richer and robust benchmarking data in this domain. In fact, there is a growing body of evidence suggesting that European online public services may not be sufficiently user-oriented and that Europe may be falling behind countries such as the US and Canada in this regard. As eUSER researchers point out, the current situation contrasts sharply with the Commission’s request that “the user, the individual has to be placed at the centre of future developments for an inclusive knowledge-based society for all”.

49 eUSER D 1.1 PART F

50 As can be deciphered from, for example the report by Accenture, Survey of eGovernment, 2003.
The figure above gives a schematic overview of the areas affected by user needs and the tools used by the project to achieve these effects.

1.1.19 Information availability, retrieval and knowledge management

The lack of information availability and difficulties with retrieving exactly the information required at a certain moment create tremendous barriers for the effectiveness of decision-making and service provision. Whilst a huge amount of information is available online somewhere, proper support of knowledge management (KM) and decision support (DS) tools in government activity is missing. New ways of communicating and interacting with ICT systems through user-friendly devices to easily access data and information (such as artificial intelligence driven systems) are required in order to handle the information overload. Strangely, many advanced technologies for effective KM are available, although not exploited effectively in public sector domains. Important factors affecting this are listed below:

- Lack of tools for efficient information and knowledge management
- New ways of communicating and interacting with ICT systems to access data, such as human formulated questions instead of keyword research
- New artificial intelligence systems to handle the information overload to avoid the digital divide, emerging when only few people become able to access and use the mass of available information
- User-friendly devices and interfaces for handling and communicating large and complex information and knowledge objects through ICT systems
- Decision making technology to enhance the required quality of decision making support and knowledge management
- Multi-agent systems to enhance reflexive and deductive skills of humans handling complex information-overloaded systems.

Future scenarios elaborated by eGovRTD2020 describe information overload as one of the biggest problems in the private and public sectors at present. Consequently, future eGovernment research should focus on artificial intelligence, including pattern recognition and pattern visualisation. This should be integrated with search (semantic web) and guidance (intelligent agents) methods to develop new technologies for filtering information while indicating the degree of information quality.

Multiple flows of redundant information are unfortunately a reality even in today’s public administration. There are, however, examples, where governments show a great deal of interest in reducing this administrative burden on citizens and businesses. In Belgium, a new eGovernment decree commits the Flemish authorities to never requesting particular information from citizens that is already available in government databases. Although the system will make life easier for citizens, the large volume of data that will be exchanged in the process does raise privacy concerns. In order to ensure the appropriate level of data protection, the government has appointed an independent oversight committee to monitor and supervise the new system.¹¹

1.1.20 Information quality

Efficient handling of information overload and extraction of high quality information are necessary for effective service provisioning to citizens and businesses. Information pollution and wrong or unreliable information can often result in bad or even wrong decisions, managerial inefficiency and lower confidence of citizens. Governments so far have done little to exploit advanced technological and organisational means to improve information quality. Questions such as which technology can tackle the flood of information in service provision and decision making, how low information quality can spread and even disrupt the functioning of public administration (especially when systems become more and more connected) are of critical importance.

Examples on information quality in public administration are supplied by the eUSER\(^{52}\) experts. They point out the critical importance of accurate and appropriate information provision and quality in the eHealth area. The evidence from the supply side suggests, however, that quality is uneven and the effect of quality assurance efforts has been patchy to date.

More specifically, the eUSER survey found that about one-in-eight users overall and just over one-in-five of the most frequent users reported finding health information online that they thought was wrong. However, although users give a relatively high importance rating to whether health web sites have a quality-approval mark or seal (although not all users are aware of these), this was ranked lower than factors such as the quality of explanation of medical information (facilitating comprehension), privacy protection and anonymity. In addition, other research has found that even when users say they give a high importance to information quality they do not always exercise particular vigilance in this regard in practice\(^{53}\).

1.1.21 Summarising the Gaps

The following table (Table 1) summarises the 20 gaps in eGovernment as perceived by the final conclusions of the eGovRTD2020 Specific Support Action. We should note that all the issues mentioned above are active problems which eGovernment faces today and in which research can provide new angles of attack and novel points of view. Of particular interest are the last two issues mentioned, namely information availability, retrieval and knowledge management and information quality which are indigenous to eGovernment due to the vast quantity of public information available and the large variance in quality.

\(^{52}\) eUSER D5.4 Recommendations eHealth, eLearning and eGovernment for All: Recommendations from the eUSER Project

\(^{53}\) See Fogg et al, 2002; Fogg and Rainie, 2002; Eysenbach and Kohler, 2002
<table>
<thead>
<tr>
<th>Categ.</th>
<th>Gap storyline</th>
<th>Gaps incorporated in gap storyline</th>
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<tbody>
<tr>
<td></td>
<td>1. Networked governments</td>
<td>(1) Government networks&lt;br&gt;(2) Government communities</td>
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<td></td>
<td>2. Legal frameworks</td>
<td>(1) Standardisation of laws, regulations and taxes&lt;br&gt;(2) Rationalise the legal framework for eGovernment</td>
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<td>3. Changing power structures and new government roles in the virtual world</td>
<td>(1) Competition among governments, regions and nations&lt;br&gt;(2) Competition among nations&lt;br&gt;(3) Competition among regions&lt;br&gt;(4) Distribution of decision-making power to local government&lt;br&gt;(5) Globalisation&lt;br&gt;(6) Power of the EU in the world&lt;br&gt;(7) New types of virtual borders&lt;br&gt;(8) Fragmented politics&lt;br&gt;(9) Integrated vs. fragmented public administration&lt;br&gt;(10) Hierarchies will flatten&lt;br&gt;(11) Increasing power of multinationals</td>
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<td>4. ICT innovation in governments and ubiquitous government systems</td>
<td>(1) Ubiquitous systems&lt;br&gt;(2) Voice control (UI)&lt;br&gt;(3) Small, ubiquitous, wireless technology&lt;br&gt;(4) Network of sensors</td>
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<td>5. Towards pan-European standards &amp; Interoperability</td>
<td>(1) Interoperability standards&lt;br&gt;(2) Central EU eProcurement&lt;br&gt;(3) Interoperability among cultures&lt;br&gt;(4) Interoperability among government systems in society&lt;br&gt;(5) Peer-to-peer&lt;br&gt;(6) Service-oriented architectures</td>
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<td>6. Value of ICT investments and ICT dependency</td>
<td>(1) Governance in service provision &amp; Role of government in service provision&lt;br&gt;(2) New types of governance&lt;br&gt;(3) New types of IT-governance</td>
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<td>7. Goal-oriented, value-added public service provision at all levels of governments</td>
<td>(1) Centralisation of service provision at national level vs. competition in regions&lt;br&gt;(2) Centralised / decentralised storage&lt;br&gt;(3) Reform of public administration&lt;br&gt;(4) Using ICT to redesign government structures and processes&lt;br&gt;(5) Local governments arrange healthcare</td>
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<td>8. Free movement of citizens and companies</td>
<td>(1) EU-expansion&lt;br&gt;(2) Europeanisation&lt;br&gt;(3) Geographic borders disappear&lt;br&gt;(4) Competition among governments, regions and nations</td>
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<td>9. Government’s reaction to challenges linked to large socio-demographic changes</td>
<td>(1) Problems with social security and pensions&lt;br&gt;(2) Cultural convergence and slow down&lt;br&gt;(3) Old people rule&lt;br&gt;(4) Immigration&lt;br&gt;(5) Ageing&lt;br&gt;(6) Religious wars and conflicts</td>
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### Table 1 Gaps in eGovernment to be addressed by research
(adapted from eGovRTD2020\(^{54}\))

| 10. New technologies for automatic monitoring and surveillance to provide security | (1) Automated monitoring and enforcement  
(2) Embedded chips  
(3) Implanted technology devices  
(4) Remote monitoring  
(5) Limited freedom |
|---|---|
| 11. Advanced technology in crime prevention and crisis management | (1) Crisis management  
(2) Cyber wars and crimes  
(3) Incident politics |
| 12. Securing transparency, trust and data privacy | (1) Data access and regulations  
(2) Digital rights  
(3) Information access and transparency  
(4) Intellectual property  
(5) Information ownerships  
(6) Transparency  
(7) Privacy  
(8) Privacy and security  
(9) Legitimacy and trusted State and politics in decision-making |
| 13. Access for all in an inclusive society | (1) Level of inclusions  
(2) Broadband  
(3) Digital divide  
(4) Social divide |
| 14. eParticipation | (1) Virtual borders and citizenship  
(2) Communities of internets politics  
(3) Community Society  
(4) eParticipation  
(5) Simulation & Gaming  
(6) High media impact of participation |
| 15. Identity management | (1) Identity management  
(2) Use of Biometrics  
(3) One European-wide identification and authentication  
(4) Worldwide identification and authentication |
| 16. Public-private-civic relationships in public service provisioning | (1) Lean government  
(2) Outsourcing of public services  
(3) Services provided by private parties  
(4) Health is privatised |
| 17. Changing Public values | (1) Changing public values |
| 18. Full online availability of public services | (1) 24x7 everything  
(2) Integration of various modes  
(3) Multi-channels  
(4) Open universal access  
(5) Government is fully present and seamless, but operating at the backstage |
| 19. Information availability and retrieval Knowledge Management | (1) Information and knowledge management  
(2) Decision making technology  
(3) Multi-agent systems |
| 20. Information quality | (1) Information quality |

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2 Gaps in the eGovernment research process

In the previous section we addressed gaps in eGovernment as a field of application. The fact that these gaps persist despite advances in technology is a direct manifestation of the complexity of eGovernment as a multidisciplinary field. What we turn to in this section is research itself, i.e. gaps arising within the research conducting process, including research programme management. As the eGOVERNET consortium point out55:

“There is a grey area between research, innovation and implementation in eGovernment. It is often difficult to assess how far genuine research is carried out within a programme rather than simple implementation. Interviewees often mention implementation programmes and projects as directly or indirectly funding research and in general as promoting innovation. It is important to note that eGovernment research always takes place in the "applied research" area and generally qualifies as being needs-driven or user-driven research. One of the most quoted problems of eGovernment research is the lack of usage of research by practitioners, either because research does not produce the type of results needed by practitioners or because the practitioners are not aware of the research being carried out.

Some countries, such as Norway, clearly address the different phases of research and development by supporting: applied research, prototyping, pilots and technology diffusion. Other countries, such as Sweden, require the coordinator of a research project to be a public authority in order to ensure an easier take-up of research output. In both examples, a key issue is the promotion of take-up of research results in order to overcome the separation between research suppliers and users, and between research and implementation.”

Another aspect of research in eGovernment has to do with its interdisciplinary nature. As it has been repeatedly demonstrated, technological aspects constitute only a limited portion of the research needs in the field. For this reason, eGOVERNET observe that “…a very significant amount of investment, in all countries, is devoted to socio-economic research in support of eGovernment policy-making. This, unlike technological research which is funded through R&D programmes, is generally funded through alternative systems, such as procurement (e.g. Slovenia, the Netherlands), partnership with universities (Catalonia in Spain, the Netherlands) and research carried out internally by the public sector (Emilia-Romagna, Italy).”

The gap analysis made by eGOVERNET is based on data collected on the needs and the current state of affairs. Both activities provided evidence through data collection and analysis. This avoided the pitfall of identified gaps being based on personal opinions of the authors; instead, evidence and input from different sources was used. However, because of the loose and ever-evolving definition of the eGovernment research field, these gaps should be considered as an evolving process subject to updating and fine tuning.

The exposition is accompanied by suggestions of measures which can be implemented by suitable policies.

The methodology was based on gap analysis, i.e. a comparison between current and desired state in eGovernment research. The differences between these two states constitute the identified gaps, which are subsequently transformed into measures and suggestions realisable within some time frame in order to achieve the desired state. The gap analysis followed 6 main steps briefly mentioned below:

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55 “eGovernment research in the EU; overview report D3.2 (M 15)”, eGOVERNET CA, May 2007
Identification of main goals of the desired state in eGovernment research programme management

Identification of the main emphasis on the current state regarding the goals of the desired state

Identification of commonalities between current and desired state

Identification of gaps between current and desired state

Identification of measures which will help to bridge the gap between current and desired state

Assessment of measures according to their impact and relevance for the development of a framework for eGovernment research.

As a result of the aforementioned method, the following gaps were identified in the eGovernment research process.

2.1 Absence of an organisation and research management infrastructure

The absence of an organisation and research management infrastructure for eGovernment research activities is evident but no measures have yet been taken to overcome it. Since this infrastructure should be established at EU level, it is necessary for all Member States to cooperate.

Measures proposed by eGOVERNET include:

- Establishment of a research management infrastructure for eGovernment research activities at European level with:
  - clearly defined central management
  - centres of excellence at a national level
  - a single access point to reach all public agencies
  - defined managing mechanisms to enable ordering, financing, managing and finally fostering the use of eGovernment research results

- Establishment of research management infrastructures for eGovernment research activities at national level

- Establishment of interaction between academic researchers which would be reflected in high applicability of research results to public administrations

- Unification and connection of eGovernment research initiatives and activities within government departments

- Seamless connection of different ICT systems

- Definition of the eGovernment research landscape

- Definition of the needs of knowledge and information exhibited by different user groups
Discussion of the legal framework problem

Clear exposition of the possibilities and mechanisms for European research collaboration and finance.

2.2 Lack of definition of a long-term eGovernment vision and strategy

Key government officials are usually not aware of the impact of research on the development of eGovernment. eGovernment research is not planned and usually depends on political decisions. The development of such research programmes is not correlated with a long-term vision and strategy, while industry and the general public are not involved in the decision of which eServices should be the next ones to be developed. Other major identified gaps are:

1. Unclear definitions of eGovernment research areas
2. Inadequate promotion and further development of eGovernment research management
3. Lack of consolidation of eGovernment research programmes
4. Insufficient promotion and development of eGovernment
5. Lack of advance planning of eGovernment research and projects
6. Ad hoc political decisions regarding eGovernment development projects, something which is mainly reflected in the rapid development of those eServices which serve the highest political priorities.

It is worth noting that online resources exist for the eGovernment vision of several countries such as United Arab Emirates\(^56\), New Zealand\(^57\), Denmark, etc; however, in all examined eGovernment vision documents the above gaps can be identified in different degrees. The long-term vision of eGovernment policies for the leading European countries is discussed in chapter 3, below.

2.3 No clear definition of users and stakeholders

There is no clear definition of users and stakeholders and the relationships between them, resulting in the fact that the needs of different users are not understood. Such a definition must be confirmed by all interested parties.

Measures proposed by eGOVERNET include:

- Clear definition of the terms “users” and “stakeholders”
- Clear definition and strengthened relationships between different users and stakeholders
- Clear definition of governments’ goals before building any eGovernment research agenda


\(^{57}\) http://www.e.govt.nz/about-egovt/vision.html
♦ Systematic effort into understanding the needs of different users and stakeholders in eGovernment research
♦ Raising awareness among different actors in eGovernment research
♦ Leveraging the involvement of various stakeholders

2.4 **No clear correlation between different types of research**

There is no clear correlation between different types of research, for example between academic research and the research needed by public administrations and the ICT industry today.

Measures proposed by eGOVERNET include:
♦ Establishment of a strong correlation between different types of research and identification of possible types and correlations among them
♦ Definition and assessment of the demand regarding execution of research
♦ Definition and assessment of the demand regarding users of research
♦ Awareness of the existing distinction between academic research and research needed by public administrations and ICT industry
♦ Establishment of strong correlation between eGovernment research and eGovernment strategies
♦ Systematic identification of the needs of eGovernment research
♦ Definition of activities, priorities and responsibilities among those carrying out research
♦ Establishment of a foundation for the development of eGovernment in Europe.

2.5 **eGovernment research is not a high priority**

Stakeholders and key government officials are not aware of the importance of research as regards the quality of eGovernment. A consequence of the low priority given to eGovernment research is the low budget provided for research activities.

Measures proposed by eGOVERNET include:
♦ Promotion of eGovernment opportunities, by governments, public administrators and others.
♦ Continuous development of competences
♦ Enhancement of efficiency of administration systems and efficient use of resources
♦ Assessment and use – if positive – of benefit from commercial eServices
♦ Definition of longer term perspectives for projects
• Alert of politicians aiming at improving the chances of getting funding
• Advertising of business opportunities in order to attract content providers
• Provision of assurance for a systematic approach to eGovernment development
• Raise of the priority given to eGovernment research
• Provision of sufficient funding for conducting research.

2.6 Lack of modern and advanced technology

The use of modern and advanced technology, business models and open source principles is not common today. Many ICT systems in public administrations are still not interacting as they are supposed to. Sometimes the reason for this is current legislation and sometimes it is weak compliance between different systems.

Measures proposed by eGOVERNET include:

• Leveraging of technological advancement in terms of new information and telecommunications technologies, new business models and open source principles for all interested parties
• Seamless connection of different ICT systems
• Stimulation of the use of state-of-the-art information
• Stimulation of the usage of modern telecommunications technologies, business models and open source principles.

An appraisal of the current situation in this respect comes from the eGovRTD2020 project which states\(^\text{58}\), "Current research focuses on the different aspects of ICT systems instead of balancing multi-channel access, interoperability and convergence of distinct technologies and devices. Extensive conceptual modelling becomes a key success criterion to manage the large complexity of such ubiquitous information systems. As there are many isolated applications, concepts of embedded systems in eGovernment settings call for research on the opportunities and benefits of converging ICT in public sector applications, including convergence of technologies of various modes. New ways of communication and interaction between various ICT applications and devices are expected in the future, e.g. voice recognition and control instead of input via keyboards. Successful implementation of ICT implies user friendly service provision and eInclusion."

2.7 Underdeveloped pan-European services

eGovernment is a complex, multi-disciplinary issue that deals with technological, socio-economic, political, legal, psychological and several other aspects that are embedded in each service. A consequence of inadequate problem-solving is apparent in the development of national eGovernment in many different ways, not always caused just by national, legal or

some other objective, understandable reasons. There are too many cases of the wheel being re-invented. Interoperability between local, regional, national and European administrations is not fully developed at this point. Pan-European specifications are sparse and no systematic exchange of know-how and best practice exists yet. Consistent architectures, common policies and standards are absent at this point.

Measures proposed by eGOVERNET include:

- Preparation of an overview of developed eServices within the EU
- Establishment of the principle that coordination of the eGovernment programme and creation of pan-European public values constitute challenges at EU level
- Development of pan-European services
- Definition of legal frameworks and elimination of legal barriers
- Unification of the agenda of services which are appropriate for each country
- Definition of a common European eGovernment research agenda
- Definition of measures for overcoming socio-economic challenges so that they no longer impose on the field of (eGovernment) research.

2.8 Low cooperation of stakeholders within ERA

Cooperation of researchers, industry and public administrations within the European Research Area (ERA) is not tight enough. Currently, ERA does not enable a single access point (possibly a web portal) where interested parties can find research results, published calls, and possible ways of cooperation with other researchers, public sectors or industry.

Measures proposed by eGOVERNET include:

- Establishment of cooperation and more open communication between public sector (purchaser) and private companies (vendors)
- Establishment of a united and coordinated research network
- Encouragement of increased collaboration between researchers, public administration and industry and strengthening of ties with users
- Definition of a common European eGovernment research agenda.

2.9 eGovernment research: addressing its methodological limitations

Understanding of the eGovernment policy-making is definitely a required step in order to evaluate the true merits of eGovernment initiatives. This will, in turn, enable public administrators to be ready to make technical, managerial, and political adjustments to the policy-making processes.
In the Yildiz\(^{59}\) review of literature on eGovernment, it is argued that "eGovernment research suffers from definitional vagueness of the eGovernment concept, oversimplification of the eGovernment development processes within complex political and institutional environments and various methodological limitations". As there is not a universally accepted definition of the eGovernment concept, a number of different definitions have been proposed, in order to cover different uses and nuances. The difficulty to agree on a single definition comes from the fact that eGovernment is a concept defined by its objective, rather than by the technology used. Roughly speaking, this means that since technologies come and go, eGovernment existed in the past, exists and will exist in the future, independently of the way technologies are used to provide eGovernment services.

A methodological limitation addressed within the same work is that there's too much hype in eGovernment. According to the author, this is not necessarily harmful, but it does become so when it raises unrealistic expectations: it then prevents people from seeing what goes wrong in an area and thus delays corrective actions. Other such limitations include the under-emphasis placed on the complex political and institutional environments and the lack of process-oriented eGovernment studies as opposed to output and outcome-oriented ones.

Content analyses of government websites, descriptive and promotional studies, examination of the outputs and outcomes of eGovernment efforts and case studies constitute the majority of the actual eGovernment literature. It is suggested that rather than studying the output of eGovernment development, to examine and explain the process behind the black box. The processes of eGovernment development have attracted limited attention among members of the public administration research community and this is seemingly the reason why eGovernment – as well as the field of public administration in general – is accused of being "largely theoretical", oriented towards empirical, practice-based rules. Future work should focus on the study of the processes shaping the management of eGovernment projects, not the processes of political and organisational change.

Pertaining to the lack of a theoretical background, Heeks and Bailur\(^{60}\) point out that eGovernment research, viewed as the offspring of information systems and public administration, is the child of two parents that are themselves perceived as intellectual weaklings – accused at times of philosophical, theoretical, methodological, and practical shortcomings – and shows all signs of having inherited the expected "genetic" profile. In their work, they give some prescriptions in order for eGovernment to move forward. Some of those are given below:

- Explicit engagement with information systems, political science, and other social science theories would improve the communication and accumulation of knowledge. There should be greater engagement with frameworks and models that emerge within the eGovernment literature, in order to create an ancestry for existing eGovernment models in appropriate referent theories.
- Greater use should be made of both "traditional" methods such as interviews, surveys, and observation, plus others such as participant observation, content analysis, and critical incident technique.
- Demonstrate the contribution that research can make to the practical application of information systems in government.

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Policy-making processes should be explained within the complex political environment they belong. Criticisms that practitioners are not well-prepared to solve technology-related problems appear, because most of the research in that area cannot be used. It has also been argued that public administrators try to solve problems in ill-defined domains, characterised as being intractable, by cutting across agencies vertically and horizontally. What is proposed by Yildiz is to turn to key policy makers in order to tap into their experiences, since their perceptions constitute an important component in policy formulation.

Key questions, which future studies should ask and search for persuasive answers, are also posed by Yildiz:

- Do the elected officials or the appointed ones dominate the process of eGovernment development?
- How do national policies affect local eGovernment?
- What is the role of social networks in eGovernment development?
- Under which conditions should eGovernment efforts be outsourced and how should these firms be selected and monitored?
- What are the appropriate roles of the citizens, civil societal organisations and private firms in eGovernment development?

### 2.10 EGovernment research link to practice

After the examination of the eGovernment research methodological (internal) limitations, it would be interesting to discuss the issues arising from the interaction between research and the actual political environment it occurs in. More specifically, there are quite a few ways that the research world can interact with its environment:

1. Influence of the direction identified in eGovernment policy to the research direction.
2. Research funding issues.
3. Possibility and feasibility of adoption of the research results by public administration.
4. Especially when addressing the pan-European dimension, availability of a solid legal framework allowing the application of eGovernment research to cross-border e-services.

This chapter does not address the different aspects of eGovernment research and the gaps existing between research and implementation in these aspects, as these have been covered in chapter 1. It mainly focuses on the policy issues related to the different aspects of the diffusion of research results.

#### 2.10.1 Influence to the research direction

The eGovernment subject is intended to support public administration in its mission for a more efficient provision of public services focusing on the citizen\(^6\). The problems citizens face in their interaction with the public administration have been summarised above in chapter 1.1. These problems clearly drive the eGovernment research so that it can provide the necessary

tools, methods and technology. In this aspect, relevant research reveals significant correlation between research goals and public administration needs.

The national policy on eGovernment research differs from state to state. This is a normal consequence of the fact that these policies need to address different actual needs for every member state. However, this should not be seen as necessarily problematic as the consequent fragmentation allows a multidisciplinary approach to eGovernment and the ability of learning from best practices and cases where things did not get as planned.

2.10.2 Research funding issues

Understandably, research funding can be deemed as a high risk investment if we take into account the fact that not many research activities will necessarily lead to directly exploitable results. For this reason and especially in the international research area, there is a definite need for funding instruments to favour initiatives that lead to tangible results in their attempt to minimise this risk.

As already identified in relevant reports (including the eGovRTD2020 final deliverable) there are different forms that research rules take. In Europe, there is a general trend to focus on directly exploitable results for every specific research grant, especially for those financed by the European Commission. At the same time, there is a specific preference to address general problems related to policy and implementation at the EU level as opposed to tackle specific issues at a smaller, national or regional level. This is necessary for transparency reasons and a result of the nature of the European Union as a body. On the contrary, in the US, there is more flexibility as the federal government embraces a different approach. This approach funds narrow scope research activities based on the consideration that successful research results could form good practice examples, which can be adopted later in other similar circumstances.

This difference in approach clearly influences the directions in which researchers put focus in their study. In Europe, larger consortia are necessary if pan-European services are sought. The ambition of each research project is also somehow limited in order to reduce risk and improve the possibility that directly exploitable results are obtained. On the other hand, US research can be performed by smaller groups of geographically less dispersed researchers as it does not necessarily address federal government-level issues. In parallel, there is more freedom in focusing on the solution of a specific problem even if there is limited probability that the research results may be exploitable later at a greater scale.

The above considerations indicate that the gap between research and actual eGovernment implementations can widen, sometimes without even noticing. The researchers try to increase the probability to yield successful results. As a consequence, they base their research mainly on what they already know well, i.e., previous research. The definition of real cases is based on this previous research and is defined subsequently. However, good intentions are not always rewarded. In this case, the research results may indeed propose a significant contribution in the scientific and technological knowledge arsenal; however, this contribution may require pre-conditions that are not realistic. As a result, the outcome of the research may never be implementable in the real world.

It is worth noting that recently the EC has publicly declared its intention to invest more in high risk IT research, addressing the abovementioned issues.

2.10.3 Adoption of research results

The subject of eGovernment research can be viewed from a different viewpoint, focusing on the exploitation of research results by public administrations. In this case, the (usually necessary) conservative approach requires that changes in administrative procedures must be accompanied by a risk-free implementation. This is understandable as in many cases these procedures handle sensitive data and records that must be maintained by the government, which must be in position to provide authoritative replies to citizen requests.

A notable exception to the above paradigm is the use of innovative technology by the military, where there is a clear and strong incentive: the need to be ahead of the enemy. This incentive simplifies the adoption process. This is the reason that in many cases the army actively performs research using its own capacity. In this manner, it is able to address and control both confidentiality and research direction.

Trying to overcome this gap, it is necessary that large scale pilot projects are created and properly funded. This will allow progressively innovation that stems from the research to be able to find its way into actual e-services in a well established and limited risk approach. The CIP (Competitiveness and Innovation Programme) of the European Commission already supports such initiatives, e.g., in the field of electronic identity the STORK project performs such large scale pilot implementations.

The LD-CAST\(^63\) project proposes an alternative method. This proposal concerns the linking of research activities to spin-off companies exploiting the research results.

2.10.4 Legal issues

The feasibility of concrete implementations of the results of eGovernment projects depends on many factors. One important such factor is a single legal framework (or at least a single set of compatible legal frameworks) that supports these implementations. In this way, the technological solutions offered by eGovernment research can find their way to the real world. The situation in EU, however, is not ideal. Every EU member state has its own legal system. When addressing pan-European services, interoperability between different member states may need to tackle compatibility issues between the legal requirements of all involved parties.

In FP6, the QualiPSo\(^64\) project addresses the legal environment in the context of open source software licenses. Even in this narrow context, the legal issues arising create significant uncertainties when trying to find a common way to implement software licenses. According to the project\(^65\) the main outcome of this research activity is to provide:

- A multinational reference site for accessing accurate, qualified, and neutral information about legal issues for Free Open Source.
- Resources for the community to understand and address the problems of license compatibility, liabilities and risk related to using FOSS.
- Methodologies and tools to track intellectual property rights during the software development cycle.


\(^64\) [http://www.qualipso.org](http://www.qualipso.org)

\(^65\) [http://www.qualipso.org/legal_issues](http://www.qualipso.org/legal_issues)
No results have been produced yet from this project activity at the time of writing.

An interesting alternative has been recorded when there is a need for immediate action in very specific areas of eGovernment and the provision of electronic services has been supported by strong political will. In these cases, the political decision has made possible the agreement in principle of all member states and the subsequent financing of an organisation that undertakes the provision (or the support of the provision) of pan-European electronic services backed by a specific legal framework. Examples are:

♦ The international cooperation for the regulated movement of goods where excise is applicable within the EU (EMCS66).

♦ The implementation of the fisheries regulation EU directive (FIDES67).

♦ The international cooperation between passport control authorities for the efficient identification of authentic and counterfeit passports at the EU borders using FADO68.

In the above cases, a top-down approach has been adopted. Initially, a central organisation (within the European Commission) has been defined. Subsequently, the technical solution, the organisation and infrastructure necessary were set up. In this manner, the legal requirements for the specific implementation were consolidated within the EC directive and ratified by the national law for each participating member state concurrently with the e-service itself.

3 eGovernment research and policy in Europe

eGOVERNET experts provide fruitful conclusions on the state and possible strategic options for eGovernment research and policy in Europe. In relation to its findings on the research policies and practices among Member States the first and paramount consideration is that eGovernment research, though undergoing a process of recognition and consolidation, is fragmented even within the Member States.

eGovernment research is funded through programmes belonging to different policy areas, making thus coordination between them very difficult. This process increases fragmentation of research by adding the fragmentation of funding streams.

Moreover, eGovernment research funding appears clearly divided between socio-economic and technological research. With investment remaining marginal, most eGovernment programmes do not seem to have perceived a necessity to fund any research to accompany or support implementation. According to eGOVERNET findings, this may be because implementation was seen largely as a technological process and, undoubtedly, much of the technology for eGovernment is perceived as being well-developed. On the other hand, the socio-economic and organisational aspects appear to have been underestimated, both in the actual implementation of eGovernment and as a potential area for research.

Using the empirical sources of Millard et al\(^69\) on the eGovernment vision in 2010, a research map of Europe was developed. It is evident that a large amount of research has been carried out in the area of back-office systems and the interface between back and front office, especially focusing on technology aspects (rather than organisational or economic issues). Issues include data and knowledge management, technical aspects of interoperability, service design and production, and trust and security. A relatively large amount of research on eDemocracy has also been carried out. Overall, there is a clear recent focus on technology use and exploitation in eGovernment research. At European level, a significant move towards policy-related research has been initiated, and corresponding cooperation between policy-makers and the research community has been set up and is still being further reinforced. This effort is also intended to raise awareness on research among the eGovernment policy community. In addition, it can help renew interest in the potential of innovative eGovernment solutions to affect public policy making; this is another manifestation of the strong interdependency of research and policy in eGovernment, as mentioned at the beginning of this document.

For the eGOVERNET researchers it is evident that research programmes and funding are a "bottleneck" between policy awareness and research effort. At policy level, eGovernment research is mentioned as an important application field of IST research. At the same time, in the research community, there are increasing research activities in eGovernment. However only a minority of countries have a dedicated eGovernment research programme, and the budget devoted to eGovernment research is low.

Experts place particular emphasis on the importance of institutional funding, public procurement, partnerships with universities and the creation of dedicated research centres in supporting eGovernment research. Public procurement in particular appears to be the most used, mainly in the field of socio-economic research for policy support, but also in some cases for technological research.

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In terms of research topics the key themes emerging across countries are: eDemocracy and eParticipation; security; knowledge management and the semantic web; and impact evaluation of eGovernment. A thorough examination of the past and future research themes reveals that "understanding user needs" is not mentioned as a priority. There is certainly a need for a more systematic and cross-country collaborative effort for defining the research priorities within eGovernment, including emerging themes such as "users needs".

To summarise the above, there are important negative features which shape and limit the course of eGovernment research in Europe. These are:

♦ Fragmentation of research and of funding programmes
♦ Although much of the technology for eGovernment is perceived as being well-developed, socio-economic and organisational aspects appear to have been underestimated
♦ Research programmes and funding limit the realisation of high policy awareness at the top into great research effort on the ground
♦ Research priorities within eGovernment are in need of re-definition to include emerging themes such as "users needs".

3.1 Policy priorities in leading European countries

In what follows we refer to the prioritised policy areas and strategies for eGovernment through the lenses of the main European eGovernment players. We restrict our exposition to the highest ranked countries, as reflected in the UN eGovernment survey of 2008 (eGovernment Readiness Index). We note that a great deal of information has been gathered from the epractice.eu portal (eGovernment Factsheets), as well as the countries’ individual Action Plans. After briefly presenting each country’s policy and strategy, we synthesise the common points encountered.

3.1.1 Sweden

At the beginning of 2008, the Swedish Ministry for Local Government and Financial Markets unveiled the new Swedish Action Plan for a modern eGovernment. As mentioned there, the utmost priority for Sweden until 2010 is to maintain its leading position, by striving to achieve the goal of having “the simplest and most efficient administration in the world”. This priority is in line with the aim to provide citizens-focused services satisfying their needs. “Simplicity” is the successor of the previous policy goal which was the target adopted by Parliament in 2000, titled “an information society for all”.

High importance is also attached to improving legal, technical and economic conditions affecting the authorities’ contacts with citizens and entrepreneurs. More efficient information handling by the authorities and increased information security are also paramount factors of success: the goal of simplicity and efficiency is pursued within a secure framework. Public

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70 UN-eGovernment survey 2008 – From eGovernment to connected Governance, Department of Economic and Social Affairs Division for Public Administration and Development Management, 2008
72 Handlingsplan för eFörvaltning Nya grunder för IT-baserad verksamhetsutveckling i offentlig förvaltning, January 2008, http://www.regeringen.se/content/1/c6/09/65/12/4fd1319.pdf, (currently not available in English)
administration is urged to use open standards as much as possible and to gradually escape from single platforms solutions. Sweden's priorities also include the following actions:

- enhance public confidence in Information Technology,
- help improve user skills, and
- endorse access to IT services.

Democracy is of great concern in Sweden. A major aim is to strengthen democracy by enhancing transparency and citizens' involvement in the decision making process.

In order to provide citizen-centric services on a non-stop basis, Sweden has implemented the 24/7 Agency Concept, which means that that public information should be available and accessible for twenty-four hours per day and seven days a week. To succeed in this uptake, Sweden applied the decentralised model for public administration, granting substantial freedom to local agencies which were responsible for implementing government policies.

According to the Action Plan, the government sets targets, allocates resources, appoints managers, provides methods and know-how if needed, removes legal barriers and other obstacles, and follows-up and evaluates results. Agencies are in the best position to know the needs of their citizens. They are autonomous in their operation and are constantly kept involved in the process. The Governments' preoccupation is to ensure that common infrastructures come into place; this is the reason why government provides methods and know-how. Indeed, establishing common rules and infrastructures, in order to finally build networked agencies, requires coordinated effort. Although this is highly demanding, the Swedish experience suggests that compensation lies in the quality of the results produced.

3.1.2 Denmark

In June 2007, the Danish Government, Local Government Denmark (LGDK) and the five Danish regions jointly adopted the new Danish eGovernment Strategy, covering the period 2007-2010. The strategy, entitled “Towards Better Digital Service, Increased Efficiency and Stronger Collaboration,” entails a better and more binding cooperation among all levels of government and poses three overarching priority areas, mutually interacting:

- Better digital service;
- Digitalisation to facilitate increased efficiency;
- Stronger collaboration to create digital cohesion.

To provide better digital services to citizens and businesses, data should be accessible by every authority and administrative tier, which means that a considerable amount of work should be done to improve data utilisation, rationalise case-handling and ensure digital exchange of information between authorities. Citizens and businesses should ideally supply any necessary information to the public sector only once. To ensure uniformity and transparency in public data, cross-governmental standards should be established when recycling data across sectors.

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Another target is that as from 2010, citizens and businesses can opt to receive all communications from the public sector in a digital document box via the citizen and business portals. As early as of 2008, citizens and businesses will be able to receive mobile text message reminders about appointments with the public sector. Although multiple channels should exist, public authorities should coordinate their strategy so that the channels used are those which offer minimal cost to the public purse. The “channel strategy” will draw up specific strategies in relevant domains so as to pursue the best and most efficient ways of delivering services. The government investigates the possibility of making digital communication compulsory for many previously “analogue” services. Similarly, the concept of compulsory digital self-service solutions offered to “IT-ready groups” is under examination. Direct digital communication between public sector and citizens and businesses will soon be established via a cross-governmental digital communication and archive solution.

Citizens’ and businesses’ trust in using ICT when interacting with public administration is highly correlated to the level of security in data handling. Rules governing data processing, improved solutions for digital signature (by 2009 citizens and businesses will be able to use digital signatures everywhere), standards of registration of digital consent to access or handle data, and confidentiality and privacy are issues which have attracted much attention in Denmark’s policy.

The Danish government, in its eGovernment strategy 2007-2010, also refers to the matter of quantifying the benefits of digitalisation. The strategy advocates that well-documented impact assessments should be based on systematic project management methods. Open standards for software used by the public sector are, finally, another special priority area.

3.1.3 Norway

The Norwegian policy on eGovernment is mostly focused on digital inclusion and round-the-clock electronic public administration services. Regarding digital inclusion the following policy principles apply:

♦ Broadband Internet should be accessible and affordable by all, irrespective of place of residence.

♦ All technological solutions involving ICT in the public sector should be based on universally designed solutions.

♦ Focus on digital skills will be shifted to those groups who currently fall behind in access to electronic solutions (elderly, unemployed etc).

♦ The Government aims for Norwegian schools to be pioneers at global level in the use of ICT for teaching and learning.

The Norwegian government has adopted an interesting approach on digital inclusion: the conviction is that digital skills are acquired, not only through learning, but also through constant access to content. Therefore, it is of paramount importance to pay extra attention to

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74 www.borger.dk and www.virk.dk respectively

75 In March 2008, the Agency for Governmental Management launched an EU tender

the quality of content provided and to ensure that access to that content is as straightforward as possible.

An increasingly compelling preoccupation is how to coordinate electronic services on so many locally-developed solutions without reference to broader, common requirements. The Government will make provisions for round-the-clock electronic public administration, entailing far more extensive inter-organisational cooperation. This will be realised by establishing common, cross-sectoral solutions and formulating universal architectural principles for ICT solutions. Electronic services, both for citizens and businesses, must be accessible via the “Minside” (“Mypage”) citizens’ website portal and the business portal “Altinn” (“All-In”). It is believed that the establishment of cross-sectoral common components will underpin the development of decentralised solutions.

Interaction among different sectors of the public administration is also facilitated by the use of open ICT standards; the government endorses public enterprises to make more extensive use of solutions based on Open Source software.

In contrast to other Nordic countries, citizens’ online consultation and participation in policy making is not a priority in Norway. Most of eGovernment initiatives are targeted towards providing information to citizens, rather than engaging them in eConsultation or eParticipation activities. Despite the increase in use of ICT and the Internet, the result is that citizens do not focus on eGovernment issues.

3.1.4 The Netherlands

The phrase “Working together, living together” is the motto that summed up the government's plans in the government statement of policy as delivered to the House of Representatives77.

Placing citizens first is the Dutch highest priority. Delivering more quality using fewer human resources is another. At national level, a twenty per cent staff reduction is foreseen, in the short term. The Cabinet aims to tackle the ten most stubborn causes of the administrative burden. The target is that citizens should no longer be asked to supply information that the government already possesses.

Seven domains have been hailed as being of the higher priority in realising an efficient eGovernment. They jointly form the model for creating a public electronic information infrastructure. Facilities are to be developed so as to serve each domain. Such processes may indeed take several years to complete. The domains envisaged are:

- Electronic access to government processes
- Electronic authentication
- Uniform identification numbers for companies and citizens
- Key registers
- Electronic personal identification (chip cards)
- Electronic information exchange
- Fast connections among government organisations.

To reduce the administrative red-tape, targeted efforts should concentrate on efficient use of shared facilities. The House of Representatives has called for the principle of “collect once, use many times” to be observed, something which clearly demands that a common, shared infrastructure is developed. To achieve this, a very different management approach is required, ensuring convergence of activities and offering best practice examples and innovative solutions.

Financing eGovernment in the Netherlands is a cumbersome issue. Investment will only be made once endorsed by cost-return analyses\textsuperscript{78}. This, at best, means delays in the process: several factors are hard to determine resulting in difficulties in calculating the precise amounts.

3.1.5 France

According to the guidelines of the Action Plan for the Development of the Digital Economy by 2012, the main priorities of the French government cover the following themes:

- Enlarging access to high-speed Internet.
- Encouraging development of the digital field.
- Diversifying the use of the digital field, including public services online.
- Adapting organisation and governance to issues regarding the digital revolution.
- Enhancing the importance of the digital field in tomorrow’s society in order to foster research, innovation and enterprise creation.

To our knowledge, the Action Plan has not been published yet; it will be presented by Eric Besson, the Secretary of State to the Prime Minister (with responsibility for Forward Planning, Assessment of Public Policies and Development of the Digital Economy) in the following weeks.

3.1.6 United Kingdom

In the foreword of the document presenting UK’s current eGovernment strategy\textsuperscript{79}, Tony Blair, the then prime minister briefly highlighted the main axes of his vision. The efforts should concentrate on building a government that will remain efficient and trustworthy in the eyes of citizens and businesses. Technology should be used to personalise services and to design them following the user needs, not the needs of the provider. An efficient government is the one that shares services and information: “work together than apart”. High importance is also put on the human resources capital: progress may be supported and sustained by skilful professionals.

As has been stated in the strategy document: “The strategy’s vision is about better using technology to deliver public services and policy outcomes that have an impact on citizens’ daily lives: through greater choice and personalisation, delivering better public services, such as health, education and pensions; benefiting communities by reducing burdens on front line


staff and giving them the tools to help break cycles of crime and deprivation; and improving the economy through better regulation and leaner government."

It is considered important to make government “transformational”, through the use of technology. That is, simple use of ICT on eGovernment processes will indisputably have some of the positive results expected (reduction of administrative burden and costs, improved quality etc); it would, however, be paramount to ensure that government will continue to evolve while technology itself develops. Schematically speaking, government and technology should somehow be engaged via a cogwheel mechanism, where technology advances act as an inherent impetus to government's innovation.

Other aspects of the UK’s vision of eGovernment include improvement of transactional services, reform of back-office processes and infrastructures, while helping front-line public servants to be more effective in their mission.

A government, aiming at providing efficient services to citizens and business, should mainly ensure multi-channel and personalised services tailored to customer’s needs. Customers’ satisfaction should not, however, be the only goal. Designing services in such a way that duplication is reduced and administrative red-tape and costs are kept low is also an important requirement. Citizens and businesses should be steered to those channels that are cost-effective for the public administration.

Information on which channels should be preferred can be given by the appointed Customer Group Directors. This idea consists of grouping customers according to their needs and assigning Directors to everyone of these groups. Customer Group Directors are responsible to lead the overall development of services to the respective groups. Mechanisms for measuring customers’ response and satisfaction should also be elaborated.

An efficient public sector should strive to eliminate paper-based procedures, give online access to every single service, and phase out legacy channels, except those whose services cannot be provided in a different way.

Special care has been given in reducing stand-alone services and service-specific solutions. There are currently 2,500 governmental sites; the target is to reduce that number drastically, converging toward the model of the one-stop-shop. A similar strategy is intended to be followed in eventually creating one national public service number for non-emergency services. This has been proven successful in New York and is being introduced in France and the Netherlands.

Sharing information among public authorities and sectors is another action of high priority, which is believed to contribute to the eGovernment’s vision. Information may regard customer’s identity, geographical data and information assurance. Customers should also be given the possibility of online access to their records. This would highly reduce errors and the cost of simple enquiries.

It is worth mentioning that open standards and Open Source software have not been explicitly set as strategic intents in the UK. That said, there is a certain tendency in using such standards to achieve common infrastructures among sectors and to satisfy interoperability requirements.
3.1.7 Switzerland

The distinctive federal system and the decentralised way in which decisions are taken provide a challenging framework for Switzerland. In a nutshell, the government’s aim is towards an efficient and customer-oriented administration, achieved through synergies among various services and among different federal levels.

It is strongly believed that customers should be effectively served beyond organisational limits and federal hierarchies. This calls for a seamless provision of services. Administration processes are to be optimised and authorities need to cooperate closely via their ICT systems. Seamless services require the definition of open standards, allowing data exchange and management.

As has recently been observed, the public administration cannot escape from the curse of reinventing the wheel, i.e. developing processes already developed in other agencies, due, among other reasons, to the fact that awareness of the potential of eGovernment is low among political decision makers. This has resulted in increased costs and decreased efficiency in the public sector services. The principle “develop once – use many times” has gained in acceptance, however, as standardisation and common solutions can reduce costs.

Indeed, there is a large potential for cutting down bureaucracy; Switzerland’s policy makers demonstrate optimism on this perspective. A policy target is that processes which implement services are to be optimised in terms of requirements, simplification and standardisation, to the benefit of a reduced administration burden.

The Swiss federal system comprises many small administrative units with increased autonomy. The scheme has advantages in that it can address people’s concerns directly and can have a better view of the real circumstances. Innovation is thereby promoted. On the other hand, this structure makes integrated electronic provision of services more costly and complicated, since it requires intensive coordination and management.

Another important issue in Switzerland’s policy and strategy is the Open Source software strategy. According to the Federal Administration’s strategic principles for ICT, IT services must be provided in an cost-effective and flaw-free way, must be planned in advance and must ensure interoperability. Open Source software (OSS) is viewed by strategists as an interesting alternative, provided that certain preconditions have been met. The strategy document defines the Federal Administration's projected usage of OSS for the years 2005-2008 and measures to ensure that OSS becomes a valid alternative to Closed Source software (CSS).

Three clear objectives have been posed referring, all, to customer-oriented services:

♦ Business should electronically conduct administrative procedures with the authorities
♦ Authorities should electronically deal with each other through modern business processes.

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80 Switzerland’s eGovernment strategy, Federal Department of Finance FDF, Approved by the Federal Council on January 2007


Citizens should electronically conduct administrative procedures with the authorities. It is clearly stated that businesses are of paramount priority. Establishing efficient ways to conduct routine procedures attracts entrepreneurs and fosters growth and jobs. Due to this belief, it is actually the case that the Swiss put eServices for businesses at a higher priority compared to those for individual citizens.

Several core principles apply for achieving the aforementioned objectives:

- Orientation on services and processes: standardised management of electronic data and of documents, from their creation right through to their archiving.
- Focus and priorities: small number of priorities, oriented to the needs of the target groups and not to technical possibilities.
- Transparency and commitment: clear responsibilities and decision-making processes.
- Innovation thanks to federalism: exploit full potential of agencies but also allow for overriding steering.
- Savings thanks to multiple usage and open standards: “Develop once, use many times”.
- Access for all: inclusive approach to eGovernment solutions free of barriers.
- Support of the decision makers: specific implementation and control instruments.

The most important instrument for implementation of the above principles is the catalogue of prioritised projects, structured along two action lines:

- Prioritisation of those public services with the most favourable cost-benefit ratio when provided electronically
- Prerequisites (legal, procedural, organisational or technical) must have already been arranged before proceeding towards prioritising services.

3.1.8 Estonia

Estonia’s vision\(^{83}\) is to create a nation that fosters an inclusive society which involves actively its citizens in the public life (eParticipation). The Estonian public sector should use ICT to reorganise business processes and management models, the aim being to increase productivity and competitiveness for the benefit of citizens and businesses. Public sector should provide services which are secured, optimised and accessible via a “one service space”. ICT should be used to ensure the development of individualised and citizen-centred solutions.

The country’s approach to eGovernment is based on a three-axis policy scheme, comprising measures along social, economic and institutional directions.

Along the social axis, Estonia’s priority is to develop an inclusive citizen-centred society. To achieve the objective, measures will be focused on:

- Broadening technological access to digital information

\(^{83}\) Estonian Information Society Strategy 2013, 2006
Improving skills and widening opportunities for participation.

The former goal is to be realised by sustainable communication networks, new ICTs that technologically converge (e.g. digital TV), consistent design of public sector websites complying with WAI quality criteria (by 2010) and further development of the citizen’s portal www.eesti.ee. The latter goal is to be achieved by measures on eLearning, raising public awareness about the information society, digitisation of cultural heritage, provision of online accessibility and citizens’ involvement in the decision-making process (eParticipation). Targets set by 2013, include 75% of Estonian residents to using the Internet, while household Internet penetration reaching 70%.

Along its economic axis, Estonia's goal is to increase ICT uptake in all economic sectors. This will contribute to productivity increases in enterprises, as well as increased capability to develop innovative products and services and improve competitiveness of the entire economy. Two measures are envisaged:

- Promotion of ICT uptake by enterprises, via support measures for eBusiness, reorganisation and for communication between public and private sector by the establishment of a common service space
- Internationalisation of the Estonian ICT sector so as to increase its competitiveness.

The target by 2013 is that the productivity per employee in Estonian enterprises should reach 75% of the EU average, with the share of ICT enterprises reaching 15% of GDP.

At institutional level, Estonia has set targets for active implementation of high impact eServices such as eProcurement, eInvoicing and others.

### 3.1.9 Finland

Finland assigns particular importance to the production of knowledge, believing this is a key factor for the national economy; such production of intangible capital is viewed as the foundation of the country's economy. The well-being of individuals and their digital inclusion are seen as prerequisites for productivity and competitiveness. The new strategy was drafted to support the emergence of the Finland phenomenon, in other words, the transformation of Finland into an internationally attractive, human-centric and competitive knowledge and service society.

While terms like “innovation”, “efficiency”, “functional” and “barrier-free” appear in the Action Plan, a noteworthy point is that Finland also speaks of human-centred services, instead of customer-centred, and expresses a great deal of concern in keeping work, family and leisure time in balance. Trust is a remarkable feature in the Finnish society; people trust each other, the public administration, other actors in society and electronic services. This has been particularly helpful in convincing citizens to get involved with ICTs and thus to enforce and support the development of eGovernment.

Finns believe that Finland will become one of the main countries to influence information society development and policy in the European Union. Finns participate extensively in the preparation and implementation of the EU's information society, innovation and competitiveness policy, and joint opinion formation in the EU. Finland will also cooperate closely with Asia and neighbouring regions concerning information society matters.

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Measures to support this vision include reforms in the public administration implemented via multi-channel, customer, process and region oriented joint services. Services produced by the public administration are to be reviewed from the consumer and the process viewpoint. A new platform to facilitate implementation of technology innovations and standards is to be established. Electronic service developers will be supported by a cooperation forum, where they may exchange experiences and receive expert help. A digital library will be created to include items on cultural heritage, film, radio and television material, and even legal acts. Social and healthcare services are part of a dedicated innovative programme, which also includes services targeted for the elderly. A Citizens’ Health Information Portal (Tervesuomi.fi) will focus on health promotion, with the participation of healthcare professionals and teaching personnel, amongst others. Other measures concerning citizens’ daily life refer to traffic safety, transport infrastructure, digitalisation of real estate trading processes. SMEs will be encouraged to make more extensive use of public administration’s electronic services. Finally, ICTs will be used to organise opinion polls for citizens to support decision-making.

3.1.10 Conclusions

Prioritising customer-focused services has become a widely spread European policy trend. This further focuses on satisfying customer’s demands, as opposed to customer’s needs. Personalisation is perceived as one of the priority issues in reaching this goal. Multi-channel services are also perceived as being a way to satisfy individual needs: every customer, depending on his abilities or preferences, may use phone, internet, face-to-face contact, digital TV or other proposed ways to conduct business with the public administration.

Multi-channel delivery is also considered as being an efficient way to reduce administrative burdens and costs. With the exception of Switzerland, where paper-based procedures are deemed to work efficiently, the majority of the European countries are set to eliminate this form of transaction.

We note here the use of the word “customer” in addressing the recipient of such services, implying that only this single-sided view of the citizen or business is targeted by eGovernment policies in Europe. The only exception is Finland. There, a human-centric approach is followed, which takes into account factors such as family and leisure time alongside the usual stereotypes of efficiency, productivity and competitiveness.

The effect of data sharing and efficient handling has been expressed through several mottos such as “work together than apart” (UK) or “develop once – use many times” (Switzerland) or even “collect once, use many times” (The Netherlands). The goal is that public authorities and agencies are in a position to interchange and transfer data without obliging citizens to re-submit information already provided in the past.

Inter-organisational cooperation, digital exchange of information between authorities and improvement of data utilisation require that interoperability issues are resolved. The use of open standards will greatly facilitate interoperability among agencies and it is thus actively endorsed by the member states.

Digital inclusion also has a place in the eGovernment policy priorities. Development of broadband infrastructures and actions focused on user’s involvement in ICTs are of concern to European societies. Involving citizen in the decision-making process and promoting eParticipation and eDemocracy is a matter of growing importance, although its degree of priority varies around Europe, Sweden, Finland and Estonia being in the lead.

Finally, “customer’s” satisfaction in eGovernment refers to both citizens’ and the business’ need. These two groups, however, do not necessarily have the same priority throughout Europe. A notable example is Switzerland, where the priority is set on improving electronic
services for businesses. The prevailing conviction is that establishing efficient ways to conduct routine procedures (rather than emphasising on citizens’ needs) attracts entrepreneurs and fosters growth and jobs.

3.2 Democratic participation

Democratic participation refers to direct public participation in political, financial or managerial decisions. When participation becomes complicated, decision making becomes necessary as well. Hence, any participatory process is potentially important for the rule system governing the activities. eParticipation is a recently invented term meaning "the use of information and communication technologies to broaden and deepen political participation by enabling citizens to connect with one another and with their elected representatives" [85]. This can also be described as ICT-supported involvement in government and governance processes, such as administration, service delivery, decision making and policy making.

A quite narrow sense of eParticipation has been reflected in the term “active participation” defined by OECD [86] as: “a relationship based on partnership with government in which citizens actively engage in defining the process and content of policy-making. It acknowledges equal standing for citizens in setting the agenda, proposing policy options and shaping the policy dialogue – although the responsibility for the final decision or policy formulation rests with government.” The term eParticipation, however, can be understood in a far broader context, where all stakeholders and not only citizens are included in the decision-making process. Regarding policy, it should be understood that the key to eParticipation success is the willingness and active participatory disposition of the majority of the citizenry. ICT can contribute to this providing a more transparent, interactive government engaged in wide dialogue with an interactive citizenry [87].

Activities related to eParticipation almost always rely on facilities supplied by the Internet and are usually realised via the following instruments:

- Online chats
- Online meetings
- Online meeting places
- Online debates
- Online protests
- Online town halls
- Online voting
- Online petitions
- Blogs


From the point of view of research, there has been considerable effort throughout the world. The field is new and, in most cases is treated within the auspices of its wider context, i.e. eDemocracy. This research has had its counterpart in European programmes albeit at a limited rate. There are only two projects in FP6 which directly deal with eParticipation, namely:

- **DEMO-net**, a Network of excellence on eParticipation
- **WEB.DEP**, a Specific Support Action to benefit the Balkan countries.

The following paragraphs present the main characteristics of eParticipation research that relate to eGovernment policy and policy-making process.

### 3.2.1 Characteristics of eParticipation research

DEMO-net has made extensive reference to the current state of research in the field and they observe that eParticipation by its very nature is a hybrid research activity. There is a rather large presence of relevant research centres in Europe (76 research centres; in comparison, North America hosts 14 centres in the US and 2 in Canada). However, according to DEMO-net, it still is difficult to know “how and how well (if at all) these [eParticipation activities] are linked together in practice and, if so, whether or not research is reflecting and analysing these linkages.” As a possible means to answer to such a question, they propose “an analysis of ecologies of eParticipation” to reflect the multiplicity and the complexity of links among the various activities in terms of technology, structure, and patterns of use.

With respect to the relationship between the present stage of research and the design of agendas for future research, they point out that eParticipation is a still youthful area, where more exploratory, descriptive and flexible methodological approaches may be favoured. At a more mature stage however, description and understanding should give way to more rigorous evidence-based explanation and evaluation via methods such as comparative analysis.

Researchers in DEMO-net also note that there are few obvious types of eParticipation activity that were not covered at all by the respondents to their survey. The example they give is computer games which through their informative and participatory elements could potentially help users gain a better understanding of key policy issues (environment, urban planning etc.) or key public roles (citizen, political representative and others).

### 3.2.2 Conducting (designing) eParticipation

Supplementing the overall eParticipation research scope of the DEMO-net network, efforts have also been made in FP6 to conduct eParticipation in order to assist the policy-making process. These involved “designs” of the form of eParticipation required according to specific needs of various social groups. Two FP6 projects serve this purpose, namely:

- **eLOST** (eGovernment for Low Socio-Economic Status Groups)
- **WEB.DEP** (Western Balkans Democratic Participation)

Of those, eLOST is not exclusively dedicated to eParticipation design but includes the process as part of its wider purpose. In this way, eLOST have established the eGovernment Expert Exchange System as a general platform and forum for experts’ participation. eLOST has been presented in section 1.1.13.

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88 DEMO-NET, Deliverable 4.2, ver 1.0, December 2006
The second project (WEB.DEP) is a pure design effort. Its primary aim is to establish an important communication and information management network hosted by the national news agencies of the Western Balkan countries. It involves policy makers and stakeholders from the Western Balkans (governmental organisations, public news agencies and citizens) into eDemocracy/eParticipation processes, supported by a uniform environment operating under specified procedures and a common code of ethics. The project brings together 8 partners representing three Western Balkan Countries (Albania, Serbia and FYROM) as well as two Member States (Greece and United Kingdom).

WEB.DEP is the definitive eParticipation design project in FP6. It addresses a wide audience and represents a good example of transfer of know how from more mature Member States towards the younger Balkan states.

Actual design is based on pre-elaborated interaction scenarios. The researchers created the specification of the eParticipation tool by using structured stories, called scenarios, about people who are users of the WEB.DEP community forum. Scenarios enabled stakeholders to define and discuss their expectations of what actors do in a forum and how they do it. The stakeholders who wrote the initial scenarios were journalists who work for the national news agencies in the 3 Western Balkans countries: i.e. those closest to the context.

### 3.2.2.1 Scenario design and generation

The principle followed by WEB.DEP researchers was to allow participants belonging to the national news agencies to write the scenarios used for the design of the forum themselves. Although the Greek and UK partners had used scenarios before, the news agency partners were not. To this end, a guidance document was produced. The scenario template is shown in the following table, also based on the experience gained via eRepresentative.

<table>
<thead>
<tr>
<th>Scenario Title</th>
<th>Give the scenario a descriptive title. This should include the actor's name and an indication of the task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario author</td>
<td>Author name and organisation name</td>
</tr>
<tr>
<td>Date</td>
<td>Date scenario was written</td>
</tr>
<tr>
<td>Name of actor (one actor per scenario)</td>
<td>Give the fictional actor's name</td>
</tr>
<tr>
<td>Brief description of actor</td>
<td>e.g. occupation, age, gender, where the actor lives</td>
</tr>
<tr>
<td>Actor's location</td>
<td>Where the actor is during the scenario. This should include the type of Internet connection used.</td>
</tr>
<tr>
<td>Actor's objective/task</td>
<td>Why the actor is visiting the forum/the actor's &quot;task&quot;</td>
</tr>
<tr>
<td>What happens</td>
<td>Describe how the actor interacts with the forum to achieve his/her objective. You will need to imagine the system and make this up. This may be up to a page long.</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Benefits of using the forum for this task (to the actor or someone else)</td>
</tr>
</tbody>
</table>

Table 2. Scenario template (WEB.DEP, see ref. 89)

Scenario writing was completed during additional face-to-face meetings which included specific themes, associated tasks templates and roles for the main actors, namely:

- Journalists

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Different scenarios written by various teams of journalists went through a re-iteration and merger process, finally concluded with a set of 15 scenarios for implementation, corresponding to each task. The table below shows the 15 tasks and the corresponding actor roles. Functional roles were identified, namely:

- Forum administrator
- Journalist
- Moderator
- User (citizen, expert, government)

<table>
<thead>
<tr>
<th>Actor’s role</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journalist</td>
<td>To initiate a discussion.</td>
</tr>
<tr>
<td></td>
<td>To reply to a comment.</td>
</tr>
<tr>
<td></td>
<td>To add a poll to a discussion (to write the question for a yes/no</td>
</tr>
<tr>
<td></td>
<td>quick poll).</td>
</tr>
<tr>
<td></td>
<td>To write an article based on a discussion.</td>
</tr>
<tr>
<td></td>
<td>To ask a government representative (e.g. a ministry spokesperson)</td>
</tr>
<tr>
<td></td>
<td>for input or feedback.</td>
</tr>
<tr>
<td></td>
<td>To moderate a comment/some comments.</td>
</tr>
<tr>
<td></td>
<td>To choose a discussion to summarise in order for it to be translated</td>
</tr>
<tr>
<td></td>
<td>and placed in the English-language shared forum.</td>
</tr>
<tr>
<td></td>
<td>Journalist receives an alert about activity in the forum.</td>
</tr>
<tr>
<td>Citizen</td>
<td>Make a comment in the forum. (The citizen may be an expert in the</td>
</tr>
<tr>
<td></td>
<td>topic or not)</td>
</tr>
<tr>
<td></td>
<td>Propose a topic for discussion to a journalist.</td>
</tr>
<tr>
<td></td>
<td>Citizen reads the forum.</td>
</tr>
<tr>
<td></td>
<td>Citizen votes in a poll.</td>
</tr>
<tr>
<td></td>
<td>Citizen registers to take part in the forum.</td>
</tr>
<tr>
<td></td>
<td>Citizen receives an alert about activity in the forum.</td>
</tr>
<tr>
<td>Government representative (e.g. of a</td>
<td>Reply to a comment.</td>
</tr>
<tr>
<td>ministry)</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Lists of tasks for scenarios (WEB.DEP, see ref. 89)

The scenarios were also used to support decisions about the various eParticipation procedures, which the WEB.DEP researchers implemented as an iterative series of models, called Influence Models. These models showed in a diagrammatic and textual form the relationships between journalists, government representatives, and citizens, based on the lifecycle of a discussion topic on the WEB.DEP portal.

Models were updated and influenced by the scenarios which eventually fed the design structure of the forum. A diagramme of the final (after iterations) influence model describing the eParticipation process is given in Figure 4. The numbers correspond to distinct stages of the process, for example:

2. Journalist Y uses this item (either as background information or just as inspiration) to start Discussion B about Topic A in the WEB.DEP Forum. Journalist Y writes the first post of Discussion B. Y adds links to various articles and documents in the Document Repository (e.g. government statements) to the discussion's Resources page, to support the discussion. Y adds information about ...

3. Journalist Y publicises Discussion B: adding an article about it to the Document Repository; a “featured discussion” link to it on the WEB.DEP home page; etc.  

Finally, the simplified structure of the forum is shown in the diagramme below.

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91 The full list of steps can be found in ref. 90.
Each discussion contains a collection of pages. Discussions are simplified for the diagramme but in reality each discussion has a longer cycle of articles and comments. Each of the three discussions shown is presented at the same stage. In practice, each is expected to develop over time. Closed discussions are available on a read-only basis. Articles are posted by journalists on the Results page after the discussion is closed, as there is likely to be a delay between the end of the discussion and final responses to the discussion being received.

### 3.2.2 Lessons learnt

WEB.DEP researchers point out that remote scenario writing, a process which becomes necessary for international projects with many remote participants, is not always a satisfactory solution. To quote: “Stakeholders are asked to write about technology that does not exist, for technology experts, when their own expertise lies elsewhere. Further, resources were not allocated for either translating the guidance material into local languages or translating scenarios into English, the working language of the project. Due to constraints on travel and meetings, this meant that merging and finalising the scenarios needed to be undertaken between meetings, using annotated scenarios distributed by email.”

Scenario-writing in WEB.DEP was never initiated remotely; instead, face-to-face meetings were necessary. The lesson learnt here is that one should not underestimate the value and the need for such meetings and should plan accordingly in advance.
The project's researchers recommend the guide by Peter Rees Jones\(^{92}\) as an aid to extend the connections between technology experts (who require scenarios) and domain experts or users (who write them). For the case of WEB.DEP, however, they remain unconvinced as to whether such an aid alone would eliminate the need for additional meetings.

The beneficial role of scenario building is singled out by WEB.DEP researchers. They were a lightweight way to capture the journalists’ vision, tacit knowledge and likely contexts of use. Partners formed a shared vision of the portals and their use in practice. Thanks to scenarios, the development of the forum defining details was possible as well as associated eParticipation procedures and governance codes.

Although no scenario was ever started remotely in WEB.DEP, researchers point out that this should not deter future efforts for remote generation. An indirect form of such generation did indeed take place. We quote\(^{93}\): “... the journalists who wrote most of the scenarios were not present at the meeting where the initial scenario was written. They were introduced to generating the scenarios by their colleagues. This implies that scenario-writers, ideally the stakeholders closest to the context, do not have to meet the technology experts who are responsible for specification or design directly. This pyramid method could be used to gather scenarios from a larger and more diverse range of stakeholders, for example potential citizen or government users, provided adequate support was available.”

The project has increased the understanding of how scenarios can contribute towards achieving user-centred design of eParticipation. Researchers propose that sustainable eParticipation initiatives can substantially benefit from further investigation into cost-effective ways of involving more stakeholders in the eParticipation design process.

### 3.3 The European policy and targets on eInclusion

Current European policy on eInclusion is based on the Ministerial Declaration at Riga\(^{94}\) in 2006. The declaration states that:

“e-Inclusion means both inclusive ICT and the use of ICT to achieve wider inclusion objectives. It focuses on participation of all individuals and communities in all aspects of the information society. e-Inclusion policy, therefore, aims at reducing gaps in ICT usage and promoting the use of ICT to overcome exclusion, and improve economic performance, employment opportunities, quality of life, social participation and cohesion”.

Six themes to be used as vehicles fostering eInclusion have been identified:

- **e-Accessibility**: make ICT accessible to all, meeting a wide spectrum of people's needs, in particular any special needs.
- **e-Ageing**: empower older people to fully participate in the economy and society, continue independent lifestyles and enhance their quality of life.

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\(^{93}\) Taylor-Smith, E., Buckner, K. “Designing e-Participation with Balkan Journalists”; in Peter Parycek and Alexander Prosser (eds.) EDem08 E-Democracy Conference, Danube University Krems, Austria; Austrian Computer Society, Vienna, Austria, 29th – 30th September 2008.

e-Competences: equip citizens with the knowledge, skills and lifelong learning approach needed to increase social inclusion, employability and enrich their lives.

Socio-Cultural e-Inclusion: enables minorities, migrants and marginalised young people to fully integrate into communities and participate in society by using ICT.

Geographical eInclusion: increase the social and economic well being of people in rural, remote and economically disadvantaged areas with the help of ICT.

Inclusive eGovernment: deliver better, more diverse public services for all using ICT while encouraging increased public participation in democracy.

The Declaration includes a list of priorities along the lines above and a general action plan on how ICT can enable fulfilment of such priorities. Progress is to be measured by a quantitative goal:

“To convincingly address e-Inclusion, the differences in Internet usage between current average use by the EU population and use by older people, people with disabilities, women, lower education groups, unemployed and “less-developed” regions should be reduced to a half, from 2005 to 2010.”

Being practically two years away (January 2009 to December 2010) from the end date, the question which naturally arises is measurement of progress towards the set target. Indeed, in November 2007, the Commission adopted the Communication “European i2010 initiative on e-Inclusion - to be part of the information society”. This proposes a European Initiative on eInclusion comprising:

- an eInclusion campaign "eInclusion, be part of it!" to raise awareness and connecting efforts during 2008, to be concluded by a Ministerial Conference, to demonstrate concrete progress and reinforce commitments, and

- a strategic framework for action to implement the Riga Ministerial Declaration by:
  - Enabling the conditions for everyone to take part in the information society by bridging the broadband, accessibility and tackling competences gaps.
  - Accelerating effective participation of groups at risk of exclusion and improving quality of life.
  - Integrating eInclusion actions to maximise lasting impact.

The “Riga Dashboard” was also created by the initiative, in an effort to provide a statistical reporting platform for measuring progress towards the Riga eInclusion targets.

The results have not been encouraging so far. As the eLOST researchers point out, there is enough evidence to support this. The latest i2010 annual report acknowledges that progress towards the Riga targets is only happening at half the speed needed to reach them. The 2007 Riga Dashboard report includes concrete performance measures, such as gaps in Internet usage, broadband coverage in rural areas, accessibility of public websites, and digital literacy gap. The report claims that, based on current trends, gaps in Internet usage can only be

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reduced to a half by 2015. Broadband coverage, on the other hand, is likely to be met at EU level. The accessibility rate of public websites in Europe was only 5% in 2006; compromising the Riga target of 100% (accessibility here refers to conformity with minimum web accessibility standards and guidelines). With respect to the digital literacy gap, for groups at risk such as those least educated, those economically inactive and the older population the Riga targets are not likely to be met by 2010.

Remark
As Europe therefore is not able to progress at a faster rate towards eInclusion, one cannot expect eGovernment to become the mainstream mode of governance for all at any rate faster than that of eInclusion targets. It is rather evident that research here has a role to play in pinpointing additionally needed innovative measures, action lines and technological solutions to narrow the digital divide.

3.4 Raising awareness

The eLOST survey confirmed the relatively low levels of awareness on eGovernment services among LSGs. The survey point out that among those who use the Internet, this can be the prime reason for not using eGovernment services, at least on some of the participating countries. Raising awareness among non-users is also important as it can supply motivation and can augment the work of intermediaries. The project researchers compiled their policy recommendations as follows:

♦ The study of media habits and information channels of LSGs can provide the basis for awareness building campaigns. This could include examples of best practices in this area.

♦ Awareness building campaigns intended for LSGs must be developed, tailored to their target audiences. According to the analysis of results from the eLOST focus groups, eGovernment sites / services must be advertised more actively on television. Alternatively, booklets with Web addresses and short information about most important sites should be made available in public offices or distributed by mail to all households. It is important that awareness campaigns focus not only on the products but on the benefits for the user. This also calls for appropriate organisation of eGovernment services sites themselves.

♦ Long-term planning is needed, including setting of future goals for awareness levels among LSGs, measuring and monitoring awareness levels over time, and deciding on the frequency of the campaigns.
4 The international dimension: eGovernment policy outside Europe

In this section we briefly refer to stated policies of highly-rated (regarding eGovernment) countries outside Europe.

The US Federal Government approach towards eGovernment is based upon the three principles of the President’s Management Agenda, namely that government reform is:

♦ Citizen-centred, not bureaucracy-centred
♦ Results-oriented
♦ Market-based, actively promoting rather than stifling innovation through competition.

G.W. Bush has stated that success of the these aims depends on agencies working as a team across traditional boundaries to better serve the American people, focusing on citizens rather than individual agency needs. To assist agencies in implementing security controls for managing their information systems’ risks, the government has substantially raised spending on information security to $6.8 billion in fiscal year 2009 (62 percent increase over $4.2 billion, in the fiscal 2004).

It is worth mentioning that according to the Federal Chief Information Officer (CIO) – charged with acting as the principal interagency forum for improving agency practices – the eGovernment vision encompasses “a Federal Government that strategically, efficiently and effectively uses IT to serve and protect our citizens.”

It is widely claimed (for example in West) that in the post-September 11 world, governments are taking security and privacy much more seriously than they did previously. More public sector websites publish security policies on their sites, and there has been an increase in the percentage that publicise their privacy policies as well.

This attention to security has also led to an increase in the presence of “restricted areas” on government websites that require registration and passwords for entrance.

On another note, the four goals set by the CIO are summarised below:

♦ High IT professionals’ competencies
♦ Relevant information should be securely, rapidly and reliably delivered to stakeholders
♦ Interoperable IT solutions

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97 Karen Evans, Director, US Federal Chief Information Officers, eGov monitor, June 2005

98 Electronic Government’s Role in Implementing the President’s Management Agenda, July 2002 - Available at: http://www.estrategy.gov/drilldown.cfm?action=it_policy_01

99 White House, Budget Highlights, FY 09 IT Budget Spring Update Reflects Sustained Commitment to Improved Service Delivery - Available at: http://www.whitehouse.gov/omb/egov/g-9-budget_highlights.html


Integrated, accessible Federal infrastructure using collaborative technologies to enable streamlined information exchange (Federal Government 2.0)

Indicative clues on the policy priorities of the US are also included in the study by West\textsuperscript{102}. The study, amongst others, underlines the fact that equity and accessibility are important principles that should not be overlooked, as, seemingly, is the case with government officials. West suggests that officials should redouble their efforts to make sure eGovernment is open to all and that vulnerable populations are not further marginalised from the benefits of technology.

In the US, the federal government created a one-stop portal, namely GovBenefits.gov. This portal serves as a screening tool to help citizens find federal government benefits that they may be eligible to receive. As of mid-2008, it has included twenty-eight participating federal agencies and 386 programs. Similarly, the U.S. Small Business Administration hosts Business.gov as a single portal to federal services that touch American businesses. It partners with twenty-one other federal agencies to provide government services and information for business, and provides access to many state and local resources as well.

Canada places high importance in integrating service delivery\textsuperscript{103}. The efforts stem from two inter-related streams of thought and reform that have converged during the last years: first, a philosophy of citizen-centric governance and service that emphasises better outcomes and performance over process; and secondly, the emergence of the Internet and new digital technologies that underpin eGovernment and widen opportunities for eServices delivery. Canada actively markets its eGovernment services, by advertising on TV, radio, airline magazines and newspapers to lure citizens into using its portal canada.gc.ca. What is also remarkable in the case of Canada is that the eGovernment Action Plan is founded on factual information acquired through its customer base. This is achieved by regularly surveying citizens and businesses regarding their attitudes and needs.

Australia’s vision\textsuperscript{104} for 2010 is to maintain its position as a leader in eGovernment, by demonstrating how effective use of technology transforms government into a more efficient and client-oriented sector of the economy. Through effective use of technology, the government will improve its structures and processes. Online, electronic and voice-based services will be fully integrated into government service delivery.

The government has identified four strategic priorities set to guide agencies over the following years:

- Meeting users’ needs.
- Establishing connected service delivery.
- Achieving value for money.
- Enhancing public sector capability.


In order to implement those goals, Australia will make effective use of innovative technology such as mobile communication and smart cards. Effective dialogue with industry will keep the latter informed of progress towards the vision for 2010, while the government will draw on industry expertise through a series of regular industry forums. Finally, impact measurement of the actions undertaken is deemed important in order to monitor implementation. This is to be achieved by developing a set of service delivery metrics to gauge user satisfaction, level of connected government, value for money and improvements in public sector capability.

Deakins has argued (several other authors have agreed as well) that a total of sixteen key issues should be considered critical to the success of eGovernment, especially in the case of the US. These issues belong to six interrelated areas and are shown in Figure 6: Worth, Access, Relationships, Regulation, Protection and Societal (WARRPS).

![Figure 6. Key issues for the creation of eGovernment in the US](image)

According to a survey conducted in New Zealand, aimed at determining the level of support for these sixteen key issues, there is a strong belief that fostering eGovernment actually creates efficiency, providing citizens with inexpensive, real-time and consistent access to information and transaction facilities. Accessibility was also felt to be a significant issue when developing and maintaining a local authority website, whilst issues such as personal privacy and security were considered as the most important ones for the policy makers.

Overall, the results suggest that six of the sixteen key issues (e-procurement, digital divide, e-tailing, taxation, cultural obstacles and social effects) are not well understood by local eGovernment policymakers, in spite of the strong promotion of these issues by the central

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government. There was good support for eight of them (namely: **efficiency, accessibility, consumer confidence, trust, legislation, security, privacy and IT workforce**), being signalled significant issues when implementing and maintaining a local government website. Conversely, **e-procurement, indigenous people, e-tailing, and taxation** were not considered to be significant issues by policymakers. The remaining four key issues have a mixed basis for support at this time (**digital divide, private sector, cultural obstacles and social effects**) and would merit a more detailed investigation. Respondents were individuals who had the most direct involvement with eGovernment policy development.

Evolution of eGovernment may be thought of, in terms of policy, as a step-by-step procedure starting by setting an overall strategy. The example of Dubai is indicative. Dubai’s policy and approach towards eGovernment started first of all with infrastructure and setting of standards. Best practices were studied throughout the world and, after a benchmarking process, own standards regarding eServices were developed. For the next stage, some state-of-the-art synergistic tools such as ePay, eLearn, eCitizen, eLibrary, mDubai, eJob and eIntegration were built. Since then, an eGovernment team has been monitoring the quality of eServices and gauging the level of customer’s satisfaction.

Singapore is one of the world’s most advanced and innovative examples of citizen-centric and efficient eGovernment delivery. The first priority in the 2000 eGovernment Action Plan was to better serve the nation in the digital economy. The second eGovernment Action Plan, unveiled in 2003, aimed at further spurring the transformation of public service into a networked government. Accessible, integrated and value-added eServices delivered to citizens and businesses were considered as being of high importance.

Hong Kong’s policy is also towards the use of ICT to provide customer-centric services that promote an accessible, accountable and efficient government. The mission is to provide integrated, one-stop customer-centric eServices, to use business process re-engineering to transform government and to promote a more pervasive eEnvironment that raises eLiteracy in the community and drives the adoption of eCommerce and eBusiness.

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109 [Howard Dickson, Chief Information Officer, Government of Hong Kong, eGov monitor Newsdesk, August 2005](http://www.egovmonitor.com/node/1294)
5 Policy issues and recommendations

The 2010 EC Information Society strategy\textsuperscript{110} which was launched in spring 2005, set a new start for the Lisbon Strategy in which knowledge and innovation have been deemed among the drivers of growth and affirmed the importance of building a fully inclusive information society, based on the widespread use of ICT in public services, SMEs and households.

Furthermore, it stated that “much remains to be done to demonstrate economic impact and social acceptance” with respect to the benefits of online public services.

The new eGovernment Action Plan was published about a year later. The Plan was heavily impact-measurement-oriented and resulted in the new Competitiveness and Innovation Programme (CIP)\textsuperscript{111} aiming at the strengthening of ICT-oriented developments in the public sector.

As the publication of the FP7’s 1\textsuperscript{st} call for proposals for IST in 2007 showed, there will be no fundamental research in eGovernment financed by the European Commission at least up to 2008. Instead, broadly defined eGovernment initiatives and activities will be supported by the ICT Policy Support Programme (ICT PSP)\textsuperscript{112}, which is part of the CIP. This means that the Commission considers that funding for research in the field should give its place to funding for implementation pilots.

As eGovRTD2020 conclude in their final policy recommendations:

“…implementation pilots are positive instruments, as long as they are not the only one, and as long as more fundamental research is also financed. The scenario, however, for eGovernment is currently that the EU will only finance pilots and not research. This choice seems to imply that all major important eGovernment research has been conducted and that it is now only the time for deployment. Certainly FP5 and FP6 have produced appreciable research, but our findings show that the current development of eGovernment has not reached outstanding results and that many challenges are still to be solved with the help of fundamental research.

…”

Researchers in eGovRD2020 observe that although implementation pilots will mostly finance technological development, such investment of public money has not been negligible in the past, (36.5 billion Euro in 2004) but with no commensurate result in terms of impact and take-up. The consortium conclude that spending money for ICT alone is not enough for making efficiency and effectiveness a reality and increasing inclusion and participation.

In fact: “…there exist some key challenges which can only be overcome via basic fundamental research …”

The eGovRTD2020 Action concludes with the following policy recommendations:

♦ Complement implementation pilots with funding for eGovernment research in selected identified areas (there have been thirteen identified research areas by the consortium which cover the spectrum of eGovernment)

\textsuperscript{110} \url{http://ec.europa.eu/information_society/eeurope/i2010/index_en.htm}
\textsuperscript{111} \url{http://cordis.europa.eu/innovation/en/policy/cip.htm}
\textsuperscript{112} \url{http://ec.europa.eu/information_society/activities/ict_psp/index_en.htm}
Ensure that new eGovernment research is holistic and multidisciplinary and that each funded research project strikes the right balance between strictly defined technological research and development on the one hand, and more socio-economic, cultural, organisational, political, regulatory and legal research on the other hand.

Secure that fundamental research at the edge of transforming basic ICT innovations into large-scale applied solutions takes a wider view, including impact assessments, framework developments, and large-scale applicability of technology advancements.

Require research proposals to tackle the complexity of socio-technical systems in eGovernment contexts, thereby embarking on a multidisciplinary approach and securing contributions to advance methods and tools which deal with the complexity of socio-technical systems in the public sector.

Reinforce European and international researchers in the field of eGovernment to collaborate and contribute to the advancements of the field by working cross-disciplinary.

Foster a stronger dialogue among the key actors of the field (academia, governments and ICT industry and consulting) when investigating eGovernment research themes by supporting the actors to create the necessary favourable environment of exchange and collaboration.

Secure high-quality applied research through approving evidence of capabilities and competencies of project partners in the field of application.

Finally, eGOVERNET recommend consolidation measures for impact of research:

“There is a widely felt need for consolidation and reaching of critical mass in order for eGovernment research to have an impact. Several countries have created, often in partnership with universities, some kind of eGovernment research hub, as physical or virtual research centres. This is the case, for example, for EGIZ\(^{113}\) in Austria, IBBT\(^{114}\) in Flanders, the Fraunhofer eGovernment Centre\(^ {115}\) in Germany, and the eGovernance academy in Estonia\(^ {116}\). In addition, dedicated umbrella projects have been supported in order to integrate and structure eGovernment research (in the UK, for example).”

The Institute for Prospective Technological Studies (IPTS) of DG-JRC has commissioned a study\(^ {117}\), which analyses eGovernment challenges and opportunities and examines how research can support policy goals to 2010, in line with the Lisbon objectives. It is shown that different topics, such as understanding user needs, appear as future research challenges, and that these reflect the move towards a better understanding of how eGovernment can contribute to general EU policies (competitiveness, job creation, growth, and cohesion)\(^ {118}\).
Pertaining to organisation and coordination of research, the study offers a number of recommendations:

♦ Support innovative uptakes by conducting decentralised research, able to respond to signals from the public and civil sectors across Europe, as well as to market signals and the needs of the European ICT industry.

♦ Strengthen support for policy priorities (EU and industrial) on a limited number of key strategic eGovernment areas and the corresponding clusters of research activity.

♦ Communication is most important. Establish interactions between researchers and practitioners, encompass the concept of research clusters, and invest in the R&D resources of individual organisations at local and regional levels. A European centre of eGovernment – not dependent on the Commission – should be of help in this direction. Communication should also be established between research and research results. In practice this can function as a one-stop-shop where the interested user can acquire an overview of the field without being actually involved in the core part of the research.

♦ A key action in establishing links between national policies and EU policies is to create synergies, allowing different countries to work together, especially in activities related to cross-border services, thereby achieving a lot more differentiation and healthy diversity. Synergies should also be established between European and non-European eGovernment research, thus facilitating identification of common areas of interest.

♦ eGovernment progress should be in line with the needs and interests of stakeholders involved and available resources. Identification of key actors, stakeholders, institutions, networks, users, sponsors, etc., at EU, national and regional level, performed either by the EC, the Member States and/or a brokerage service is the first important step. The spread of the available resources is recommended – by the same study – to be as follows:

  ♦ 30% seeding innovation
  ♦ 50% supporting major EU policy goals, e.g. through priority research clusters.
  ♦ 20% creating synergies, e.g. through strategic support functions, an ideas factory, a clearing house, a brokering service and a good practice framework.

Retention of some flexibility in the above figures will allow responses to unprecedented and future research needs.

Finally, eGovernment policy is undoubtedly influenced by a-priori set visions of the future. Depending on those, the actual policies formed are different. The aforementioned study by IPS categorises these visions as representing a networked, distributed or centralised government, bounded, of course, by institutional structures.

The vision of a networked government includes a user-centric, dynamic, proactive and effective organisation, capable of providing personalised services to its citizens and to every stakeholder involved (businesses, regions, etc). It aims at fostering democratic concepts of government where the user is highly involved, and actively participates and contributes to discussions and decisions within the community, the region and the society as a whole. A networked public sector is open, providing an absolutely transparent model, where interactions with citizens and businesses are trustfully established.
In the distributed government vision the stakeholder interacts with the different levels of public administration in a distributed manner. The public sector is closely connected to the private sector, thus optimising expenses and user demands.

In a centralised setting, the government operates as a single centralised body. This may result in a more efficient organisation but not necessarily a legitimate one. Our current understanding of accountability, openness and transparency shows that these principles may be violated by such a model. Eventually, democracy may become the victim of the battle for efficiency.
Conclusions

Policy affects eGovernment and eGovernment affects policy. This is the unique feature of eGovernment as a field of practice and research. Starting on the former, we observe that prioritising customer-centred services has become a widely spread European policy trend, although, with the exception of Finland, this does not seem to extend to a holistic view of human-centred services as well.

Personalisation and multi-channel delivery, serving user needs rather than user demands, are included in the plans and stated policies of most countries in Europe and the world in general. Data sharing and efficient handling is another policy target to achieve, usually expressed through mottos such as “work together than apart” (UK) or “develop once – use many times” (Switzerland) or even “collect once, use many times” (The Netherlands). Subjects such as digital inclusion and the associated development of appropriate communication infrastructure also remain high in the policy agenda, while the more advanced notions of eDemocracy and eParticipation gain in popularity albeit at a varying rate throughout Europe.

When it comes to research this is characterised by fragmentation and funding breakup, which act as a "bottleneck" between policy awareness and research effort. National budgets for eGovernment research are low, while European ones, so far, appear reduced under FP7.

Studies funded by FP6 have emphasised that although much of the technology for eGovernment is perceived as being well-developed, socio-economic, organisational and emerging themes (for example “users needs”) appear underestimated. In addition, the diversity of legal environments and research policies among the European countries result in increased difficulty in the exploitation of eGovernment research results into cross-border e-services.

Finally, although research spending in the past has concentrated on ICT, this has not resulted in commensurate advances in efficiency, effectiveness, inclusion and participation. Key challenges still exist and the way to overcome them is via basic, fundamental research.
Project Index

Access-eGov, 19
ALIS, 13, 14
BRITE, 15
COSPA, 11, 13, 17
DEMO-net, 14, 29, 64
DEMO-NET, 64
eGOV-BUS, 19
eGOVERN, 8, 9, 14, 41, 42, 43, 44, 45, 46, 52, 77
eGovRTD2020, 8, 9, 10, 13, 14, 17, 35, 37, 38, 40, 45, 49, 76
eLOST, 23, 24, 25, 26, 64, 70, 71
eMAYOR, 10, 13, 15, 16
eREPRESENTATIVE, 65
eUSER, 18, 23, 35, 36, 38

FISTERA, 17
FLOSSPOLLS, 27
GUIDE, 20, 30, 31
HOPS, 22
INTELCITIES, 23
ITAIDE, 16
iWebCare, 10, 11
LD-CAST, 50
OneStopGov, 19
ONTOGOV, 19
QUALEG, 22
SAKE, 12
SemanticGov, 19
TERREGOV, 19
WEB.DEP, 64, 65, 66, 67, 68, 69