Strategies for the future eGovernment

Strategie pro budoucnost eGovernmentu

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Abstract: The paper provides some of the interim results of the Fifth Framework PRISMA project dealing with the of impact ICT on government and citizen services in Europe. The analysis and the concept description of long-term strategies for eGovernment and a long-term vision over 10 years for eGovernment are described. Activities performed by the government are analysed from the demand ("front office") and supply ("back office") point of view. Recommendations for long-term strategic decisions are based on three scenarios of the future European development till 2010: (1) "Prosperous and just Europe", (2) "Turbulent world", (3) "Recession and reorientation".

Key words: e-Government, ICT, long-term strategies, scenarios of the future development

Abstrakt: Příspěvek uvádí některé dílčí výsledky projektu PRISMA financovaného z prostředků 5. rámcového programu EU. Provádí se analýza a popis koncepce dlouhodobých strategií rozvoje eGovernmentu a popisuje se vize stavu eGovernmentu za horizontem 10 let. Činnosti provozované státní správou se posuzují z hlediska poptávky po službách („front office") a z hlediska nabídky služeb („back office"). Doporučení pro dlouhodobá strategická rozhodování jsou odvozena ze tří scénářů vývoje Evropy do roku 2010: (1) „Prosperující a spravedlivá Evropa", (2) „Turbulentní Evropa", (3) „Recese a reorientace".

Klíčová slova: e-Government, ICT, dlouhodobé strategie, scénáře budoucího vývoje

INTRODUCTION

Objectives

To provide classification of governmental eServices from the demand and supply point of view. To outline a long-term vision by means of three possible scenarios of the future development of public eServices for Europe until 2010. To propose a set of recommendations and instructions for development of long-term strategies at different levels of government.

Project PRISMA – a contribution to the EU Action Plan eEurope+

The paper presents interim results emerging from the 5th Framework Programme research prepared by the team of the PRISMA project as an accompanying measure within the Action Line "New models for providing services to citizens". Project PRISMA has studied good practice across a number of public eService areas which use the scenario development techniques to assist service providers, ICT suppliers, user organisations and policy makers to anticipate good practice requirements within eGovernment over the next five to ten years.

The core work of the Prisma project involved:

– Mapping overall trends and changes affecting eGovernment over a 10 year time horizon.
– Identifying current good practice (state of the art) in the provision of citizen services.
– Elaborating long-term visions over 10 years for eGovernment.
– Conducting foresight and scenario-building exercises over 10 years for eGovernment.
– Developing new models of service delivery based upon future-oriented good practice for these services.

The scenario method makes it possible to draw up a list of recommendations for managers in governmental institutions which can help them to outline better long-term strategies for eGvernment development.

eGovernment integrates both the common and specific of the Europe

The importance of government is clear. Not only are we all dependent upon its services and the framework of law,

The contibution presented at the international conference Agrarian Perspectives XII (CUA Prague, September 18–19, 2003).

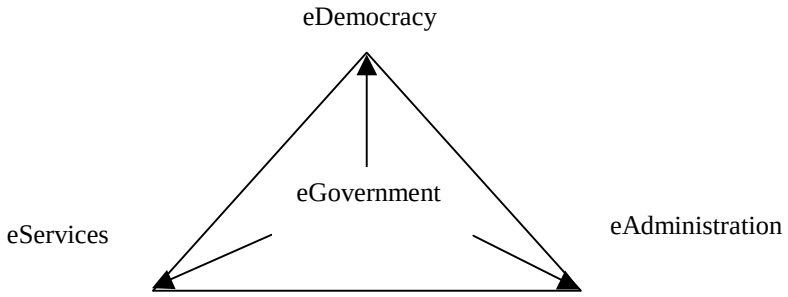

Figure 1. Components of eGovernment

peace and stability it provides for personal, social and economic lives, but in Europe, it also contributes 40% of GDP. However, despite the power of the new technologies in providing global reach and interactivity, manifestations of eGovernment are cultural and political rather than technological. This can be seen in Europe by comparing the very diverse levels of take up and of policy approaches, ranging from the Scandinavian participatory and the Anglo-Irish market-driven models of northern Europe, through the more statistic, public sector driven responses of central Europe, to southern Europe's stronger reliance on family, community and city-region driven approaches. It means that *there will not be an "unique European rule"* of how to provide eServices for citizens. Member states will provide their own strategies based on common general principles.

The main tasks for a long-term strategy for eGovernment

New ICT technologies enable the Government to be more cheap, smart and easly than previously envisaged but they also go further than this: they are starting to redefine the landscape of government by substantially changing the relationship among private, public and third sector and between government and citizen. This results in four main tasks which must be involved into the long-term strategy of the eGovernmental development:

1. Transformation of Government into a cost-effective, dynamic, flexible and productivity driven institution.
2. Pursuance of interactive user-driven services to citizens and businesses which will maximise both security and fulfilment and trust and confidence.
3. Supporting good governance so that democracy will be characterised by accountability, openness and transparency among the different parts of society.
4. Promoting the wealth, welfare, cohesion and sustainable development of society.

Successful application of ICT in eGovernment will require technology-mediated processes that will change the broader interactions between citizens and government.

Dimensions of eGovernment

The term "eGovernment" is used to cover a trio of activities (see Figure 1):

1) eDemocracy represents those aspects of eGovernement which aim to improve participation of citizens and businesses in democratic decision building by facilitating access to relevant information and knowledge and by facilitating public discourse.
2) eAdministration is a mechanisms providing, supporting and facilitating process of communication among Government, citizens and businesses.
3) eServices refers to the direct provision of on-line services direct to users: citizens, businesses, private and non-profit organisations. eServices comprise both the

Table 1. Application areas of eGovernment

	Information services	Communication services	Transaction services
Administration	Public service directory, guide to administrative procedures, public registers and databases.	E-mail contact with civil servants, politicians, etc.	Electronic submission of forms, tax filings, applications for licences or permits.
Political participation	Laws, parliamentary papers, political programmes, consultation documents, background information in decision-making processes.	Discussion dedicated to political issues, email contact with politicians	Referenda, elections, opinion polls, petitions.
Everyday life	Information on work, housing, education, health, culture, transport, environment, etc.	Discussion dedicated to questions of everyday-life, jobs or housing bulletin boards, etc.	Ticket reservation, course registration, etc.

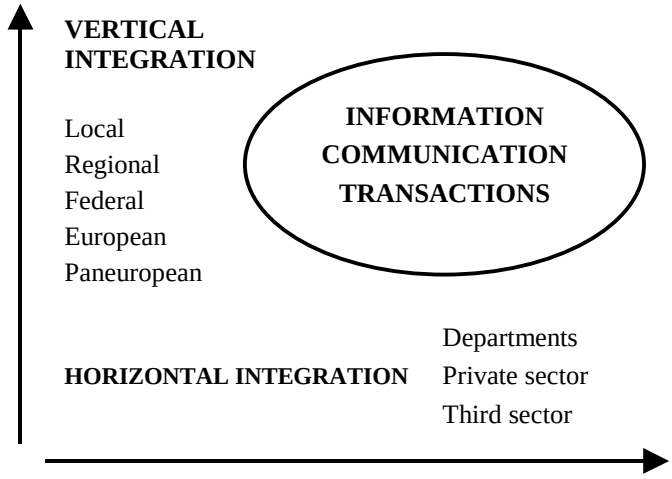

Figure 2. Vertical and horizontal service integration within life- or business events

ICT support of traditional market services of goods and governmental services.

Process of integration

In general, eGovernment deployed by public administrations makes use of the three main forms of electronic processes – *information, communication, and transaction.* ICT is basically finding application in three areas (see Table 1):

– the handling of administrative matters;
– the support of the organisation of everyday life; and
– the political processes of opinion formation and decision making.

While there are already numerous information and communication services available, transaction services, which initiate electronically the movement of goods or the delivery of services, are still developing. Both information and communication services combine classical "paper and face to face" approach with eServices and are provided across the society separately. The future process of development of eGovernment is thus the *process of integration*.

Life-event approach to process of integration

Traditionally, the activities performed by governments are classified into levels and economic and social subjects. The life-event approach combines the vertical with the horizontal integration. Vertical integration includes data-transfer from the distinguished levels of government, especially national and local levels. Horizontal integration is bundling several public as well as commercial services required for a certain life event (like "moving", see Figure 2).

Demand-supply approach to process of integration

Traditional life-event approach does not satisfy the requirements of deep analysis of the future development due to rapidly changing technologies and political realities, as well as the need for a coherent set of European visions and pan-European agenda, while providing strong support for regional and national differentiation. That is why a new schema of integration was developed (see Figure 3).

The e-Government concept elaborated within the PRISMA is the following:

The demand side is defined by the requirements of the users (i.e. the citizens and businesses) while the supply side describes how these services are "produced" in the back-office. Especially in the case of Internet portals, the best of e-Government in Europe will be organising services:

– For citizens, around life events, life episodes or the life cycle, such as birth, marriage, death, employment/unemployment, education, living, home, working, sport and leisure, etc., etc.
– For business, around discrete business activities, such as VAT, tax, finance, employment, etc., often supported by the business case approach where examples of typical situations are given and the service needs of businesses exemplified.

The supply side represents governmental process of re-organising to reflect citizen and business needs (e.g. through surveys) rather than its own internal concerns and structure, and provides multiple interface channels. Generally, the supply side can be considered as a process of re-engineering of the institution.

METHODOLOGY AND METHODS

Scenario method

To establish a future-oriented good strategy for maintenance and development of eGovernment, a scenario method was used. A scenario describes a possible future and is one of the tools that are used in foresight exercis-

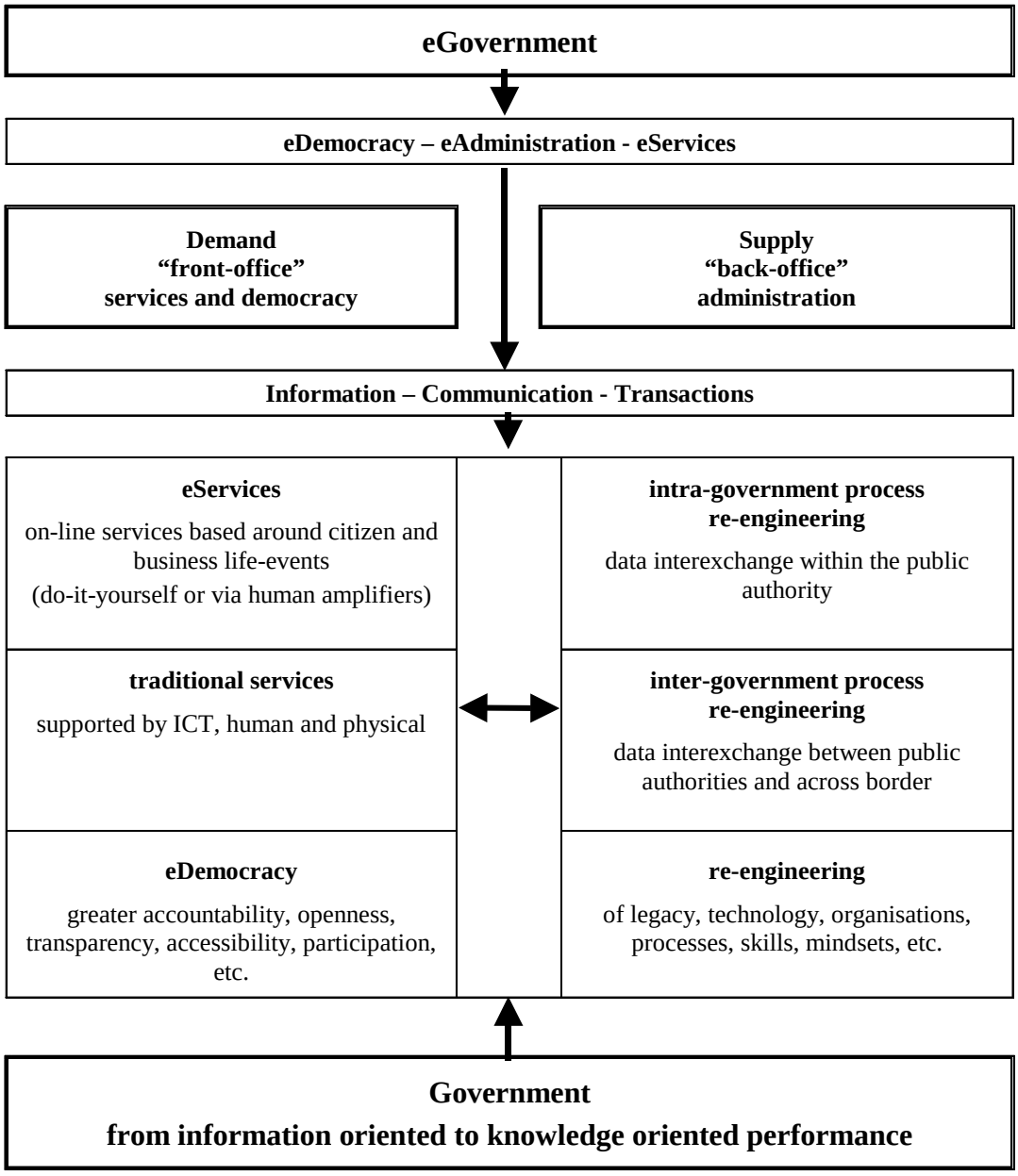

Figure 3. Demand-supply model of process of integrations

es and for policy analyses. Building scenarios on how the external world might look in the future, two restrictions must be formulated – time horizon and domains of interest. In the project PRISMA, time horizon was settled to 2010 and four domains were followed:

1. Economy/Society
2. Government
3. Information Technology
4. Sustainability.

The techniques of scenarios were developed in the Commission's Forward Studies Unit "Scenarios for Europe 2010" (http://europa.eu.int/comm/cdp/scenario/resume/index_en.htm). For the purpose of the project PRISMA, three alternative scenarios that represent realistic, internally consistent, and plausible pictures of alternative futures were outlined. They have been labelled as follows:

Scenario 1: "Prosperous and just Europe"
Scenario 2: "Turbulent world"
Scenario 3: "Recession and reorientation".

Scenario domains

The four domains which had been identified as the basis upon which the scenarios were then built can be characterised as follows:

1. *Economy/Society*. This domain refers to the general socio-economic well-being of Europe in 2010. It was decided to build three versions of the future along this di-

mension. Version "+" is characterised by good economic well being, relative peace in the world, the EU integration progressing well, and positive moves towards social cohesion and equity. Version "–" is built around a "Eurodepression", and it represents a relatively poor economic performance, leading to strife, a slowdown of the EU integration, and an inability to make progress in social cohesion and equity. Version "0" lies between the version "+" and the version "–". That is, there is a slowdown in growth, but not an actual recession.

2. *Government.* This domain refers to the role of government in peoples' lives. Here, again, there are three versions. Version "PP" is a balanced world, with a division of competencies between central governments and the private sector; between central and regional governments; and between governments and non-governmental bodies. Version "C" is a conflict situation – both by government and the private sector wielding its economic power (largely at the cost of influence by the civil society). Version "FA" is a fall in the power of centralised control and a growth of regional governance, and self-organising small groups.

3. Information technology. This domain refers to the development of information technology, and has two versions. Version "+" is a dynamic development and diffusion with full speed ahead, while version "–" is a slowdown in progress.

4. Sustainability. This domain refers to the development of the attitude towards a sustainable environment and the implementation of policies based upon that attitude. It also has two versions. Version "+" is increasing awareness of sustainability, policies aimed at promoting sustainability, and progress in various indicators of reduction of the environmental load. Version "–" is regression in all of these characteristics. Two other "domains" are included as composites of different features of the Economy/Society and Government domains. These are the domains of social progress and European integration.

RESULTS AND DISCUSSION

The three scenarios manage to create variation among all four domains. No scenario is perfectly correlated (either in the positive or negative direction) with any other scenario. The three scenarios present very different pictures of the European world of 2010, each has interesting unique aspects, and the set of three can therefore be used by the experts for very different discussions. None of the scenarios is the "trend", and each is possible. In the brief summarised versions described below, they have been designed to be internally consistent. See Figure 4.

Brief summary of scenarios[1]

Scenario 1: "PROSPEROUS AND JUST EUROPE".

This is in certain sense an utopian scenario: The first decade of the 21st century has been beyond everyone's expectations. The world is at peace and has experienced a widespread economic and social progress. It has appeared possible to combine economic growth with a reduction in the environmental burden on the planet. By 2010, Moore's Law is still in force and ICT continue to contribute to the prosperity of Europe. The scenario assumes positive economic development, a neutral role of government characterised by a mix of public and private solutions, a positive contribution by ICT technologies, and increasing sustainable development.

Scenario 2: "TURBULENT WORLD".

In this scenario, economic growth has not been sustained. In response, there has been a shift towards strong central government direction, while at the same time the market power of the private sector has greatly increased. The two forces are frequently in severe conflict. Driven by market incentives, information technology has continued its growth, but a regard for sustainability has been lost in the combination of economic volatility and conflict. The scenario assumes unfavourable economic development, an interventionist role of government, a positive contribution by ICT technologies, but a loss of sustainability.

Scenario 3: "RECESSION AND REORIENTATION".

In 2010, people rebel against technology, government and markets in favour of decentralisation, environmentalism and de-globalisation. Although there is no economic depression, neither does the economy experience much growth. The scenario assumes slow economic development, a smaller and decentralised role of government, a slow development of ICT technologies, but an increasingly sustainable development.

General outlines for demand and supply environment

On the demand side, ICT can support and enhance quality improvements to government services delivered in traditional ways, such as health, education and social care. It is important that the technology does not replace the frontline staff when this would lead to a more impersonal, lower quality service, but rather directly supports such staff by improving the quality of the services they deliver and by making them more responsive to citizen needs. *Rather than a technology-driven approach, it is important to let people do what people do best and the technology do what it does best.*

On the supply side, the much recent debate has been focused upon the need for eGovernment to adopt the rigours of eBusiness, and, in relation to the reorganisation of government structures and processes, to follow down the path of Business-Process-Reengineering. However, many see government as remaining distinctive from business for many reasons, including the fact that government cannot choose its customers and that users of government services take on a variety of roles, including voters, tax payers as well as consumers. Thus, the

[1] Total description see in http://www.prisma-eu.net

"Government-Process-Reengineering" approach may be more appropriate, learning from, but also informing business (for example in terms of social responsibility), in the context of public, private and non-profit sector partnerships.

Analysis of the future "front office" development – soft strategies

Among the overarching trends and themes identified by scenarios, there are requirements for:

1. A shift from "cold" administration to "warm" ICT-supported human services (e.g. smaller, ICT-automated).
2. Back office, larger front office with more frontline ICT-supported human services, including improved cost-effectiveness and quality of administration procedures.
3. New innovative services and practices based on state-of-art ICT, including built-in benchmarking (e.g. citizen satisfaction), scalability, interoperable multilingual access platforms, change management, etc.
4. Cross-border administration enabling access to mobile services from anywhere, anytime, including multimodal self-service terminals (Internet, voice, video).
5. Common entry points to public services, including consistency of information and quality of service (completeness, coherence, relevance, timely delivery). This includes systems to manage the complex procedures involving authorisation by different administrations on local, regional and national levels.
6. Personalisation and customisation of eGovernment services ("me"-government), in terms of content, functionality, delivery, access, interface, and technologies for identification, protection of individual rights, confidentiality and privacy.
7. Research is needed in ICT which can:
   – enable users to actively self personalise the technology;
   – enable users' electronic agents to undertake personalisation.
8. Building eServices which can learn (e.g. through neural processing) how the user uses the service and personalise it on an on-going basis (the user learns together with the system and gets personalised support).
9. Mobile-government, including mobile and multi-channel access to services for all and increased trust and confidence by citizens and politicians.
10. Tools to ease integration of services and workflow, including integration with legacy systems, knowledge management and learning systems based on natural language processing. This should also include semantic web systems and intelligent agents for fast information search, as well as knowledge management systems for European networks and focused groups.
11. Distributed artificial intelligence for eGovernment to achieve better transparency (e.g. regulations and entitlements).

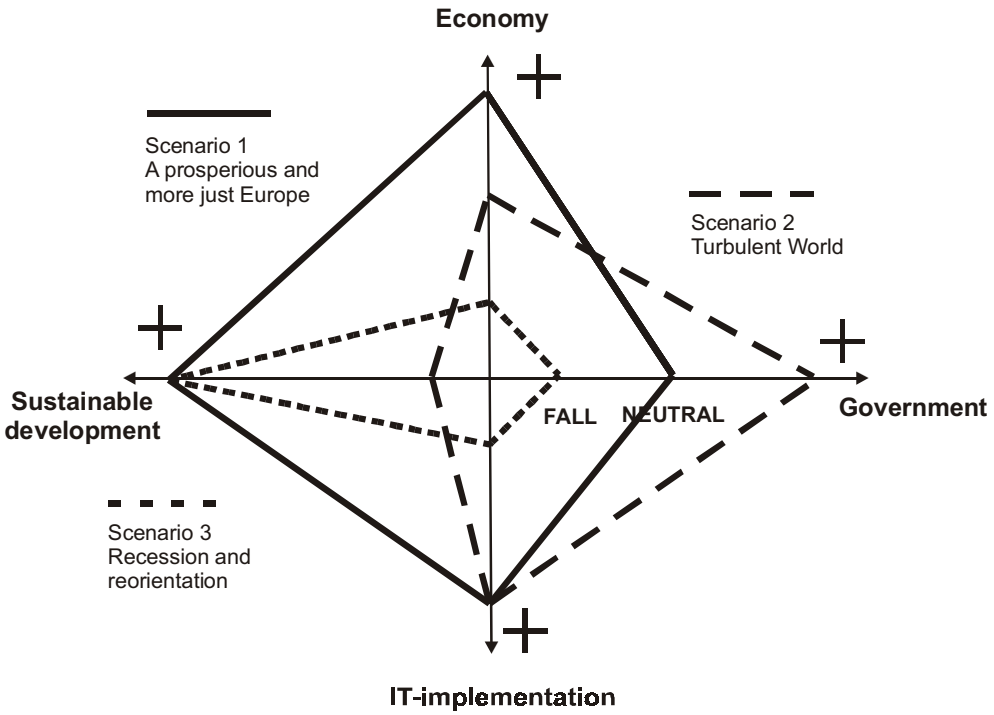

Figure 4. The three scenarios used according to four domains – economic development, sustainable development, IT implementation, government's power

12. Business models for scalable packaged sets of services (public-public and private-public) involving citizens, councils and communities (C&C services) and balancing customised large scale turnkey solutions against outsourced and standardised solutions.
13. Trust, security and confidence systems, including data protection and privacy systems, on the way to support citizens' requirements for anonymity, authentication and reliability of information, also in relation to fighting crime and terrorism against electronic, physical and personal property, as well as coping with emergency/risk situations in local and regional territories.
14. Radical strategies and models of organisation and service delivery for inclusiveness (i.e. access for all and counteracting the digital divide), including systems to improve basic services to the community (basic health, elderly care, eLearning and social services).

Analysis of the future "front office" development – robust strategies

The Prisma research also identified a series of robust strategies, i.e. which seem to be important regardless of service type or future scenario:

1. Information provision to users must be available in an easily accessible way.
2. Technologies need to be tailored to target groups, regardless of the scenario. Hence, social barriers to accessing eGovernment services should be eased, specially for people with special needs, for whom technology needs to be as inexpensive and as easy to use as possible to get over the problems of the digital divide.
3. In this way, the public sector needs to become innovative in several aspects, for example to ensure financial sustainability.
4. Innovation is also necessary in re-organising government – organisational barriers must be eased to ensure a better answer to user needs.
5. There is also a need to balance state activities with non-government organisations and private institutions within the decision-making and implementation process.
6. Security is very important, depending on privacy policies and measures and the regulatory system.
7. More education and awareness raising are necessary regarding not only ICT issues but also in relation to relevant knowledge (for example, disease prevention and healthy lifestyle information in relation to health services).
8. In some cases, technologies that are present today already provide important efficiency gains, such as in healthcare.
9. The information society must develop on the basis of demand *driven technology and not technology driven demand.*
10. Tie eGovernment initiatives more firmly into all areas of government policy, and ensure "joined-up" government, integrating both horizontally and vertically, as necessary.
11. Make sure eGovernment enhances all the roles of government (i.e. administration, regulation, service provision, institutional support for the localities' social, cultural, environmental and economic well-being, and democracy).
12. Use eGovernment to *change what government does, not just do it better*.
13. Develop a balance so that both efficiency and the public service ethic can be strengthened.
14. Measure benefits as well as costs in order to obtain a balanced overview.
15. Developing strategic alliances with a variety of private companies and civic and community organisations.
16. Creating synergies between on-line services and ICT-supported ("warm") human services.
17. Rolling out eServices (e.g. using pilots, incubators, best practice and benchmarking), and learning from your own mistakes as well as from others.
18. Implementing eGovernment requires strong vision and leadership from the top, coupled with strategic planning and resources, together with the willingness to change and adopt a new public service effort at the bottom, provided staff rights and interests are protected overall.
19. Trust in government is vital, and especially in eGovernment where human contact is reduced. Thus electronic security, privacy, data protection, etc., are absolutely necessary.

Analysis of the future "back office" development

Europe needs a clear and focused vision (not one which is just hope and arm-waving), which can be inspirational but also can be seen to be both practical (if ambitious) and necessary. It must be a specifically European vision, but must not ignore the progress in the rest of the world. In developing such a vision, a number of principles can be articulated, which could include, for example, that European eGovernment must be based upon:

1. An user and society centred approach.

eGovernment should be driven solely by the needs of the society it serves (citizens as individuals and in groups and formal organisations, as well as by business) and thus grounded in their real needs, rather than in the machinations of the existing government structures and systems.

2. Government process re-engineering.

In making government more efficient, the role of "modernisation" , or the ethos of the "new public management" is critical. Many have argued that government should proceed down the path of business, for example by adopting a radical business process re-engineering approach. But it is clear, that, despite the benefits this can bring, government is different from business for many reasons, including the fact that government can-

not choose its customers and that users of government services take on a variety of roles, including voters, tax payers as well as consumers. Thus, a "Government-Process-Re-engineering" approach is more appropriate, learning from, but also informing. Partnerships between the public, private and community sectors are one important aspect of this, but central is also the need to serve all the needs of society: economic, social and environmental.

3. Putting technology in its place – do not let technology get in the way of government.

Using new technology as a tool to support services and governance, i.e. enabling people to do what they do best (e.g. to provide "warm" human services, reliant on direct human interaction) and enabling technology to do what it does best (e.g. to provide effective and efficient data, information and communication systems). This means not replacing people with technology if the real service quality will decline as a result, but enhancing service quality by using ICT to *support people, not to replace them*. Not letting the technology get in the way, also pre-supposes the ambient technology which is unobtrusive, powerful, always at hand, easy to use and maximises fulfilment.

4. "Me-government" – eGovernment service personalisation and customisation.

Enabling citizens to actively self personalise the service, or their electronic agents to undertake personalisation, whilst building eServices which can learn (e.g. through neural processing) how the citizen uses the service and responding accordingly. "Me- government" also implies mobility, i.e. when moving between locations (including from country to country), "my" eServices can follow me.

5. Anytime, anywhere, any service.

Multi-channel access to any eService from any standardised device, wherever the user is, and from whichever level the service is provided (European, national, regional, local) must be the longer term goal. This provides access to cross-border and cross-agency services, through ambient technology and knowledge-based approaches, which are unobtrusive, powerful, always at hand, easy to use and which maximise fulfilment. Going beyond the ubiquitous computing, ambient technology could provide eServices anywhere, anytime for any purpose through fully intelligent, or smart, environments, independent of where people are but adapted to what they do. The concept of user identities will need re-thinking, for example, away from the geographically determined identity, as now, to virtual identities linked to a "digital territory".

6. "Universal service" for all eGovernment services.

This could be related to a "citizens" charter and based upon standards of access, range and quality of services, fulfilment criteria, affordability, skills needed, incentives, etc., and could contribute to measures to reduce the digital divide or at least would not exacerbate it.

7. Save our European public service ethic.

Further developing and re-vitalising of the existing European public service ethic into one suitable for the information society and knowledge economy. This would include recognising that government is not the same as business, even though it may be able to learn a lot from business (in fact, the learning should work both ways), and that there is a unique European way to eGovernment which combines both economic efficiency as well as social cohesion and access for all.

8. High-level cooperation and integration in eGovernment.

Sensitive EU-wide and national regulation should be given high priority to promote inter-governmental learning and the best practice in relation to organisational change, reengineering, technical standards, interoperability and procurement, particularly in the context of eGovernment. As in other areas, it should be possible to preserve subsidiarity and retain different institutional, cultural and political structures according to the locally determined democratic need.

13. From eGovernment to long live kGovernment.

In the same way that "eBusiness" is migrating to "kBusiness" , so "eGovernment" will migrate to "kGovernment" in the sense that the technology will become unremarkably ubiquitous (the norm) and intelligent services will be provided by intelligent government. kGovernment will be based upon personalised, intelligent government, accessed by mobile (both spatially and socially) individuals using knowledge management and knowledge engineering approaches, artificial intelligence and the ubiquitous, ambient technology. This will be anytime, anywhere, any service, on the user's terms, also "me"-government. All this will demand the use of semantic and ontology approaches, for example the use of the natural language processing to ensure that innovative technical tools facilitate different individuals and groups getting what they actually need.

Knowledge-based government is closely linked to developments in ambient intelligence which will provide eGovernment services which are unobtrusive, powerful, always at hand, easy to use and which maximise fulfilment. Going beyond ubiquitous computing, ambient technology could provide eServices anywhere, anytime for any purpose through fully intelligent, or smart, environments, independent of where people are but adapted to what they do. They are huge challenges here, however, not least in relation to security and control. The concept of user identities will need re-thinking, for example, away from geographically determined identity, as now, to virtual identities linked to a „digital territory".

CONCLUSIONS

eGovernment is Europe's next big challenge. Government has a lot to learn from the private sector in how to

maximise the benefits of ICT, but it also has its own very specific challenges and opportunities which it must meet and exploit on its own terms and differentially in relation to a large variety of cultural, institutional and functional requirements. eGovernment must move simultaneously along a number of fronts: maximising productivity, improving service quality, tackling exclusion and enhancing accountability and democracy. The challenges are great and change is inevitable. The way forward must embrace this change through a deliberate e-balancing of government for the 21st century. Many issues are political but there is much which can be done regardless of the overall societal philosophy, by focusing upon common interests and values to which all Europeans can aspire. This paper sketched the main framework needed for such (r)e-balancing, and proposes recommendation outlining the long-term strategies of eGovernment development.

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Arrived on 4th December 2003

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