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Full Length Research Paper

Electronic government services in Europe: Strategies, projects and applications

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In Europe, national electronic government incentives have made a significant contribution to the modernization of administration and its processes as well as its customer oriented services. In this study, European strategies and projects for electronic government as well as their implementation plans were analyzed, followed by an examination of the electronic services offered by the national governmental authorities in Austria, European pioneers in electronic government, the United Kingdom, the electronic government leader in Europe 2010, and Spain as a Southern European electronic government representative. The results revealed that Europe has developed hybrid electronic government strategies for the whole community, and has launched projects in that field, in which member countries have to participate, in order to offer electronic government services at a high level and in a competitive international environment. On a whole, offering a single gateway to governmental information and transactions generally offers higher attractiveness for conducting nationwide business and all incentives for electronic government focus on developing good practices in the area of efficient and effective electronic government. Nevertheless, strategies are transformed and implemented in different ways, and the intensity in the member countries and a union-wide electronic government is still in its infancy.

Key words: Electronic government, administration, public sector, public value.

INTRODUCTION

One of the most emerging concepts of information technology is electronic government. Government portals are an increasingly powerful element of worldwide public administration reform strategies providing one stop online access to governmental services. Electronic services that are made available by government to citizens, businesses, and other governmental authorities or other governments are generally proof of the changes in the public sector and cover the government driven measures at all the national levels, such as federal, state, and local as well as cross-national and international incentives (Oberer, 2002; IBM, 2009). Electronic government is an instrument to provide a citizen centric, one-stop delivery of governmental services using a variety of channels, such as web portals, call centers, self service functionalities, or mobile applications. Governments around the world try to follow their, most of the time, ambitious strategies to become, or stay, competitive. For being competitive in global markets and to meet the needs of being competitive in an increasing area of globalization, public authorities have to think about how to make their services more competitive. One aspect of becoming more competitive and contrasting with competitors on the market is investing in global oriented electronic government strategies (Tsekos, 2002; LaVigne, 2001).

Providing benefits to citizens by overcoming barriers of bureaucracy, reducing service time, increasing the efficiency of governmental processes and permitting citizens and businesses as well as other governmental authorities to connect to government information, communicating with governmental authorities and offering transaction possibilities for government driven processes in the private and business spheres, electronic government has

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already become a part of life. That is the case not only for citizens and businesses but also for governmental authorities as well, because electronic government established structures are able to change their business processes on a whole, interacting with each other using information technology avoiding media breaks, time delays, quality loss for process outcomes and lost information due to lost data or available but not used data. Electronic government portals are powerful tools for administration related reforms, re-engineering, and anti-corruption incentives enabling more customer oriented, transparent, effective, and efficient governmental services where the term customers stands for citizens, businesses, and the governmental authorities themselves being customers of each other (Tsekos, 2002; LaVigne, 2001; IBM, 2009).

LITERATURE REVIEW

The electronic government paradigm

Governments are faced with the need for the transformation and reinvention of government systems in order to deliver effective and efficient administration services to a government's customers, which are citizens, businesses, and governments themselves. Electronic government presents an approach for governments to move forward in offering high quality, cost and time effective public services, improving the relationship of citizens, businesses, and governments. Electronic government attempts to reach out to every person and business who are customers of a federal, regional, or local government and wants to operate seamlessly among the administration's agencies and governmental departments, to enhance productivity and operational efficiency, and to offer real-time information to all participants. Electronic government is evolutionary in nature, involving different phases of development (Jayashree and Marthandan, 2010; Fraser, 2010).

Improving government performance has been a key target of regulatory reform. Improvement of an administration's performance includes measures to reduce the administrative burden for a government's customers and the government itself as well as its administrative authorities. Information technology (IT) is one domain used for achieving that goal, and increased IT investment supports an approach for higher efficiency and effectiveness in managing governments and its authorities (Dečman et al., 2010). According to Ulziikhutag and Sukhbaatar (2006), an effective electronic government strategy depends on input from different stakeholders, who are citizens, businesses, government employees, and non-governmental organizations. Electronic government activities mostly address central government issues, in defining federal strategies, programs, master plans, or incentives. Following Ulziikhutag and Sukhbaatar (2006), local electronic government should be addressed more intensively because this local approach could provide the voice of the local citizens to administration, to bridge the digital divide, and to enforce citizens' participation. Generally, there is a need for procedures defining electronic government strategies, corresponding actions, and prioritization rules for all of these actions. It is an aim of electronic government to develop national competitiveness and enhance the quality of public services by establishing a systematic, effective, efficient, and productive electronic government environment. Ulziikhutag and Sukhbaatar (2006) propose, following a three column based approach, which is a citizen centered approach for citizens (providing citizens' with convenience), a transparent approach for businesses (for transparent pushed services), and a knowledge-based approach for governments to computerize government administration, integrate government information systems, and standardize government administration. Electronic government as a government project needs political support to be able to grow and progress, otherwise management may be unable to sustain the project and achieve the targets defined. Based on the approach of business process re-engineering and the improvement and increase of customer satisfaction, governments have to improve their public appearance within an international, competitive environment. Among other things, they can do so by using electronic government strategies following predefined goals, in turn, transforming these strategies into measures in order to reach the defined goals and developing control structures for strategy progress analysis. Governments need a structured communication environment with frozen as well as flexible structures to become or stay competitive. When implementing or providing electronic government services, different dimensions, such as the stakeholder, political environment, or socio-demographic dimensions, have to be considered (Erkollar and Oberer, 2010).

Information and communication technologies in the public sector

Information and communication technologies have revolutionized the world, altering how people search for information, how information is delivered, and how people can communicate with each other. The more people started to use these technologies, the more they wanted to be able to access important resources and conduct their business online. The private sector was the first to answer these desires, and companies increasingly made their services available through online channels. As people began to experience the main advantage of these online services, the easy access and retrieval of information, in their role as a government's customers, the citizens, they began to expect services from government that were similar to online services of the private sector (Roy, 2004; Accenture, 2006; Berdykhanova et al., 2010;

Peristeras et al., 2002; Yilmaz, 2007). From an administration standpoint, considering citizens as customers is useful but according to Abdullah and Kalianan (2008), it can cause local administrations to be less government and more service provider oriented, and an over-extension of the roles causes ineffectiveness for all the parties involved. According to Baum and di Maio (2000), electronic government is defined as a continuous optimazation of service delivery, participation, and governance by transforming internal and external relations through modern communication and information technologies and new media. This includes transactions between government and citizens, government, and businesses as well as government and employees and among different levels and units of federal, regional, and local government where communication with all the different parties involves the transmission of sensitive information and legal bindings. Consequently, following an electronic government approach, an infrastructure has to be developed to ensure a highly secured electronic information provision and communication (Awad, 2010; Berdykhanova et al., 2010; Sattarov et al., 2009; Salwani et al., 2009). Modern information and communication technologies are transferring governmental processes in serving citizens, businesses, and governments. Basically, electronic government suffers the same threats as electronic business but operates in different constraints. Different to private businesses that can choose with which part of the population, how and when, to communicate or to conduct business, governments have to deal with everyone.

Electronic government and electronic commerce

In comparing electronic government with electronic commerce, there are differences to be considered when implementing electronic government structures following an electronic commerce approach. Basically, governments can communicate to each other better than business networks because there are communication structures for information transfer, but businesses are competitors and do not want to share their sensitive information. Because of the number of users and the amount of transactions and confidential data transferred, electronic government networks have a high need for secure networks and security infrastructure (Sattarov et al., 2009).

ELECTRONIC GOVERNMENT IN EUROPE

The concept of electronic government was initially introduced in the 1980s by Nora and Minc, who defined telematics as some sort of combination of telecommunication technologies and computer and described how all aspects of society could benefit from utilizing new information and communication technologies. In the early 1990s, some members of the European Union began to formulate strategies for the development of a national information society (Kommission der Europäischen Gemeinschaften 2002, Longchamp 2000, Europäische Kommission 2000). Some members, such as the Netherlands, Finland, and Denmark, started with the announcement of reports and action plans (Wraight and Wraight, 2000). Other countries started much later to deal with the new information and communication technologies. In 1996, Sweden, Germany, and Luxembourg published strategies and national programs. Most countries have chosen different ways to develop their own national strategies. There were founded national committees for information society, consulting institutions committees of ministers, public control committees for information technologies, and groups of experts (Wraight and Wraight, 2000; Steyaert, 1999; Weber, 2000). Heeks (2006) gives an overview about the use of electronic government within the European Union in the beginning of online service provision by governments: 'In 2002, in the EU, the most popular e-government service for citizens (library book search) was used by less than 10% of citizens; the most popular e-government service for businesses (online submission of statistical data) was used by 23% of businesses'. Nowadays, according to the European Commission (2010), the values are approximately 60%, both for citizens and businesses with still remaining burdens discussed below. According to Rupp (2004), electronic government enables citizens to have access to their government whenever they need it, whether it is after hours or from abroad. The maturity in e-government services is a key factor to determine the attractiveness of a government (local, regional, or federal) within the European Union. National electronic government incentives have made a significant contribution to the modernization of administration and its processes as well as its customer oriented services.

European public value incentives

The European Union follows the public value approach in planning and implementing their electronic government strategies. The roots of public value have been championed by Moore (1997) who emphasized three different aspects of performance analysis for public authorities, which are delivering the actual services, achieving social outcomes, and maintaining trust and legitimacy for public authorities. His concept outlined a strategic and active role for 'unelected public servants in both defending and developing their services' (Talbot, 2007). Public value can be defined as 'the value created by government through services, laws, regulations, and other actions' (Kelly et al., 2001). Kearns developed in 2004 an approach for breaking down the public value for electronic government and defined three main categories,

which are service delivery, outcome achievement, and trust in public authorities. For all the categories, he has developed a set of indicators. For this article, the first dimension, service delivery, is the value domain of interest. Service delivery indicators are take up (the extent to which electronic government is used), the level of information provided to users, the level of user satisfaction, the level of choice provided to users, importance (the extent to which electronic government is focused on user priorities), fairness (the extent to which electronic government is focused on those most in need), and the cost of service and information provision. Another public value approach, similar to the one introduced by Kearns, is the 'Public Value of e-Government' approach of eGEP (2006), defining three main areas for electronic government: efficiency, effectiveness, and democracy considering organizational value, user value and political one as well. Indicators for the effectiveness dimension, considering user value, are administrative burden (for example, times saved per transaction), user value, and user satisfaction (for example, user satisfaction rate) and inclusivity of service, which is the usage of electronic government services by disadvantaged groups. Combining the approaches of Kearns and eGEP considering the service delivery and effectiveness of electronic government, the level of information, communication, and transaction provided, accessibility and administrative burden allow a deeper analysis of user value. Basically, there are three different supply models for electronic government: information, communication, and transaction. At the beginning of electronic government in Europe, only the information level (providing information mainly to citizens and partly to businesses, like download of forms, guides and "who-is-who", law information system) and partly the communication level, including the provision of email functionality and electronic web forms to start an administrative process, were implemented. After having developed these two levels, some European countries began implementing level 3, transaction, as well, as in tax declarations, the registration of residence, e-procurement, and public library system (Rupp, 2004).

Present strategies and projects

Today, citizens are demanding better services, better democracy, and better security, while businesses demand less bureaucracy and more efficiency. There are strategies and programs published by the European Union that all member countries have to follow. There are projects for borderless electronic government throughout the entire European Union. The main target is for electronic government to enable all citizens, businesses, and organizations to carry out their business with government more easily, more quickly, and at a lower cost. By now, the total number of citizens making use of electronic government worldwide is small. The results of a study undertaken by Heeks (2006), shows that developing countries provide 80% of the world's population but only 20% of its electronic government users. In Europe, approximately 60% of all internet users have accessed electronic government. Compared to the strategy developed by the European Union, until 2011, every citizen and all businesses should use electronic government actively, so there is much ground to cover for all European countries. In addition, in some European countries, there seems to be a negative relationship between citizens' attitudes towards electronic government and the use of electronic government: positive attitudes combined with low rates of electronic government use and vice versa (Graafland-Essers and Ettedgui, 2003; Accenture, 2004). In order to avoid such a negative relationship, a Europe-wide electronic government action plan was designed to support governments in meeting the demands concerning their services (European Commission, 2010). As the European Union continues to embrace greater diversity, new needs and demands are arising such as for seamless public services across borders, to increase citizens' opportunities for mobility, and for business in Europe. The current action plan, which is an integral part of the i2010 initiative for growth in information society, has been designed for 2006 to 2010 and focuses on five priorities, which are inclusive electronic government, key enabler, high impact services, eParticipation, and efficiency effectiveness (European Commission, 2010). All citizens should be 'inclusive', which means that no citizen should be left behind so that until the end of 2010 all citizens should gain easy access to the digital services offered by the administration focusing on these citizens who are at risk of being left behind mainly because of a lack of ability or facilities to access these services (Commission of the European Communities, 2006). Different ways of access had been planned, and some of them will be mentioned explaining the Austrian way of following electronic government strategies. Another priority is to offer efficient and effective services to improve the transparency of government services, increase user satisfaction, and lighten the administrative burden on citizens and businesses. High impact services should be made available more widely, like services for mobile citizens, social security services for citizens, or eProcurement services for businesses. Generally, electronic government services within the European Union are fragmented. With high impact services, there already have been started pilots ensuring that services that are available nationally also reach millions of people across the European Union (European Commission, 2010). Such incentives create a need for mobilizing stakeholder commitment and to create a substantial demand for key enablers, such as electronic identification and interoperability. 'Up to 2010, the Commission will collaborate with Member States to explore which 'high-impact services' with a pan-European dimension could contribute most to the achievement of the

Lisbon Strategy, to transform Europe into a competitive knowledge-based economy' (European Commission, 2010). The key enabler should provide the foundation for the collaboration of electronic government systems in different administrations and countries. 'Public agencies need to coordinate their development of e-Government services, and agree on basic principles. The interoperability of systems is fundamental, and electronic identities (eID) need to be recognized by all if they are to replace traditional paper ID cards. Open source software offers governments' greater flexibility and lower costs. Without these key enablers in place, the rewards promised by e-Government will be delayed and may never be fully achieved' (European Commission, 2010). 'OneStopGov is an example of a high-impact pilot project that unifies disparate e-Government services into one seamless process. It centers on life events, such as births, marriages, getting a driving license, and deaths. The Use-me.gov project takes this simplification even further, onto the mobile phone. It offers a sophisticated service that enables any local authority to deliver services, such as traffic reports, to mobile phones' (European Commission, 2010). With eProcurement, governments enable businesses offering their goods and services to public agencies and governments. Basically, businesses have better publicizing opportunities and are able to reduce costs of bidding. To reinforce governance all over Europe, the action plan helps to strengthen citizen participation and democratic decision making: eParticipation uses modern information and communication technologies and develop interfaces between public authorities, citizens, and democratic institutions. The European Union and its bodies conduct research on underlying technologies that lead to a simplification of services, for both customers and governments and its bodies. In the 7th research framework, a work program for 2009 to 2010 has been published (European Commission, 2009). EU guided implementation projects support the delivery and roll-out of electronic government solutions across the Union. A leading program is the Policy Support Program, which is a major component of the 'Competitiveness and Innovation Framework Program 2007 to 2013. It aims to best use information and communication technologies and digital content by citizens, businesses, and governments as well as their authorities. 'The main objective is to develop pan-European, Information, and Communication Technology (ICT) based solutions and services, most notably in the areas of public interest' (European Commission, 2010). Currently, there are two pilots running: Pilot A covers 'secure identity across borders linked (STORK)', 'Pan European public procurement online' and 'simple procedures online for cross-border services'. Pilot B runs 'e-Guidance and e-Government Services', 'European Citizens' Attention Service', 'e-Government Lowering Administrative Burdens for Rural Businesses', and a 'European Civil Registry Network'. The aim of the EU STORK Project is to establish a 'European eID Interoperability Platform that will allow citizens to establish new e-relations across borders, just by presenting their national eID. Cross-border user authentication for such e-relations will be applied and tested by the project by means of five pilot projects that will use existing government services in EU Member States' (STORK, 2010). In November 2010, there were several pilots of STORK that went live to achieve electronic identity interoperability across Europe. Eleven European countries participating in STORK launched pilots to offer secure eID cross border services and several countries, such as Lithuania, Slovak Republic, and Finland joined the STORK project (STORK, 2010). Currently, there are some pilots for the various services running. Pilot 1 is a 'demonstrator showing that cross-border electronic services can operate in a number of Member States. The applications include national portals from Austria (help.gv.at), Estonia (eesti.ee), Germany (mein-service-BW), Portugal (portaldocidadao.pt), the UK, one regional portal from Catalonia in Spain, and one specific service for compliance activities for working in Belgium (limosa.be)' (STORK, 2010). Pilot 2 cares about safer chat, focusing on safe use for children and young adults. Pilot 3, student mobility, wants to ensure EU wide mobility for students to study in different member states of the European Union and Pilot 4 focuses on electronic delivery, an approach for the secure online delivery of documents. The action plan covering actions from 2010 to 2015 will be published in 2011.

Electronic government performance

According to the United Nations Department of Economic and Social Affairs' UN Government survey (2010), all European regions offer high developed electronic government services compared to the world average. Similar studies have been conducted by the United Nations Department of Economic and Social Affairs since 2003, but for the 2010s, studies to better reflect the expectations of electronic government development significant changes have been introduced in the survey, focusing more on how governments use websites and portals for delivering their services and expanding opportunities for their customers to participate in decision making. Questions have been added, some of them changed, or removed. As a result, the world average of electronic government index registers a slight decline in comparison to previous years. The same is valid for a comparison of the e-government development index values between 2008 and 2010. All of these results are due to the modified methods used in the survey and do not reflect a degeneration of electronic government. Moreover, these values give a reminder for the need of more resources for improving online services and procedures.

The United Nations electronic government development index (EGDI) is a comprehensive scoring of

capacity and the willingness of national governments and their administrations to use online and mobile technologies for executing governmental functions. It is based on the online presence of all 192 UN member states, and the results are tabulated and combined with a set of indicators reflecting a country's capability to participate in the information society. The index evaluates a government's electronic government performance in relation to the others with a maximal value 1 and a minimal of 0. Due to the changing understanding of potential electronic government changes and underlying technologies, although the basis model remains the same, the precise meaning of these values slightly vary from one survey to the next. The EGDI is the weighted average of three normalized scores on the most important electronic government dimensions, which are the scope and quality of online services, telecommunication connectivity, and human capacity. Each of these indices is a composite measure and can be extracted and analyzed independently to arrive at a set of online service index values, for each country's national websites, in which the websites of ministries are assessed, and associated portals and subsidiaries' websites are partly considered. Among other things, national websites were tested for a minimal level of web content accessibility. The survey is divided into four parts corresponding to four levels of electronic government development, typical online presence, enhanced presence, transactional presence, and connected one, apart from a few exceptions following a binary response system counting 'yes' with 1 and 'no' with 0. The total amount of points scored by a country minus the lowest score of any country divided by the range of values for all countries shows a country's value. A country's value depends on how varied the online presence is, the degree of user friendliness, and the amount of content offered. Some countries were randomly selected for a full re-analysis of their web presence to verify the researchers' results. By following a citizen centric approach, one point that is not covered in this index is how easy information can be accessed by governments' customers, the citizens. Great value was given to the development of participatory and integrated transactional services. 'Countries with an Internet penetration rate greater than or equal to 50% could receive up to 25 additional points for the use of blogs, discussion forums, online chat features, bulletin boards and social networking tools, online voting and petitioning, and calendars of e-participation events, while countries with an Internet penetration rate below 50% but above 30% were eligible to receive up to 10 additional points. A further 5 points were awarded to countries having an Internet penetration rate of at least 30 percent if integrated transactional services were provided through the national portal' (United Nations Department of Economic and Social Affairs, 2010).

The telecommunication infrastructure index summarizes five indicators: number of computers, internet users, telephone lines, mobile phones, and fixed broadband subscribers, each per 100 persons using data provided by the International Telecommunication Union. Each indicator was normalized by taking its value for a given country lowering by the lowest value of any country in the survey and dividing by the range of values for all countries.

The human capital index consists of two indicators, the adult literacy rate, and the combined primary, secondary, and tertiary gross enrollment ratio. The two indicators were normalized by taking the values for a given country subtracting the lowest value for any country in the survey and dividing by the range of values for all the countries.

An e-participation index is an expansion for the survey emphasizing quality in the connected presence stage of electronic government. 'These questions focus on the use of the Internet to facilitate the provision of information by governments to citizens ("e-information sharing"), interaction with stakeholders ("e-consultation"), and engagement in decision-making processes ("e-decision making"). A country's e-participation index value reflects how useful these features are and the extent to which they have been deployed by the government compared to all other countries. The purpose to offer insight into how different countries are using online tools to promote interaction between citizen and government, as well as among citizens, for the benefit of all' (United Nations Department of Economic and Social Affairs, 2010).The world's leading country in electronic government provision is the Republic of Korea with an e-government development index value of 0.8785, followed by the United States (0.8510) and Canada (0.8448).

On a regional basis, Europe leads with the highest score of 0.6227 followed by the United States with a value of 0.4790. Considering the world average index value of 0.4406, these are the only countries above the world average. Asia with a value of 0.4424 lies slightly above the world average, including the Republic of Korea, which, as an exception, is on the top of the 2010 ranking in the e-government development ranking. In the world ranking of electronic government, the ranks four to seven and nine to ten go to Europe with index values from 0.8147 for the United Kingdom (rank 4) to France with 0.7510 on rank 10. Based on a well-developed information and communication technology infrastructure, and high capacity of human resources Western and Northern Europe perform especially well in electronic government, followed by Southern and Eastern Europe. The top ranked countries in Europe doing electronic government are, according to the UN Government survey conducted in 2010 by the United Nations Department of Economic and Social Affairs, the United Kingdom with an electronic government development index value of 0.8147 followed by the Netherlands with a value of 0.8097 and Norway and Denmark with values between 0.78 an 0.80, by a given world average index value in 2010 of 0.4406. Considering the regional values for

electronic government development in Europe in 2010 the leading regions are Western Europe (index value of 0.7165) and Northern Europe (index value of 0.7113) followed by Southern Europe (index value 0.5566) and Eastern Europe with an index value of 0.5449 and a regional average value of 0.6227. Table 1 gives an overview of the world's electronic government performance in 2010, focusing on Europe. In the top 10 list, Western Europe had five countries, Northern Europe four, followed by Southern Europe with one country and no Eastern Europe countries (United Nations Department of Economic and Social Affairs, 2010).

PUBLIC SECTOR APPLICATIONS

Three European countries have been selected to be show cases for electronic government in Europe:

i. Austria, as a representative of Western Europe, the region with the highest electronic government development index value in 2010, and as the declared 'European champion in eGovernment' for the fourth time in a row.
ii. The United Kingdom, as a representative for Northern Europe and according to the UN Government survey (2010), the ‘new leader’ in Europe 2010.
iii. Spain, the only country in Southern Europe ranked in the top 10 list of the UN Government survey (2010).

Austria

In comparison to other European countries, Austria started electronic government early on. In 1998, the task force 'E-Austria' recommended forming an information and communication technologies board, responsible for planning and implementing electronic government on the federal, regional, and local levels. Some e-services that Austria offered its citizens became show cases for solutions within the European Union. The go live of HELP.GV.AT, a service portal for citizens, which is described below, was a milestone in Austria’s electronic government history. In 2006, the Austrian Federal Government launched an initiative to reduce the administrative burden for businesses by 25%. The USP.GV.AT, a business service portal, described in the foregoing, is the flagship project for this initiative and one out of approximately 200 measures defined to reduce the administrative burden. The initiative is coordinated by the Austrian Federal Ministry of Finance.

In 2009, the Austrian Federal Government launched a program on the reduction of the administrative burden for citizens, including a focused baseline measurement, accompanied by actions in the areas of birth, marriage, and death. Approximately 4,000 interviews have been conducted and, after the extrapolation of the results and the analysis of qualitative questions, workshops aiming at the identification of tangible reduction measures for citizen were organized. According to the 'less burden for the Austrian economy' initiative, more than 150 measures identified in these workshops have been reported to the Council of Ministers in fall 2010 where the next steps for the program have been decided on. In addition, it will be implemented through concretized, defined measures starting from fall 2010 onwards (Stork, 2010).

The HELP.GV.AT portal has offered services to citizens for years and has been continuously improved since its launch. HELP.GV.AT is an Internet platform with routes to a large number of public authorities, which provides information on different interactions with Austrian authorities that is required in the most frequent life situations, such as housing, permits, pregnancy, childbirth, or marriage and the electronic processing of these procedures. The portal is an interface between government, its authorities and citizens with a special emphasis placed on criteria such as transparency, clarity of information, and concentration on essential facts. In 2003, the portal received the 'eEurope e-Government Award' (Digital Austria, 2010; DIGITALES.OESTERREICH.GV.AT).

An increasing number of administrative procedures can be done electronically using this portal. Apart from the main portal in the German language, a view in English is available that offers foreign nationals orientation. Structured in accordance with individual life situations (for example, work, car, retirement pension), HELP.GV.AT provides information and support to foreigners who come to Austria in order to live and work. It is the portal’s objective to guide foreign users step by step through the required administrative procedures. Potential benefits of the HELP.GV.AT portal for citizens and businesses are 24 h access, preparing interactions with authorities offline, or handling administrative procedures electronically, showing the correct sequence of steps to be taken when contacting authorities. As a consequence, citizens and businesses can properly plan their dealings with authorities. For the authorities themselves, a new type of cooperation between authorities and their 'customers' has been established. The reduction of the workload is required of civil service staff. By relieving civil service staff of routine work, productivity gains can be achieved and public authorities have the opportunity to devise their own individual web presence and to link this to HELP.

HELP.GV.AT, as mentioned on the portal itself, is operated on a high performance web server by the Federal Data Processing Center. The editing is organized and centralized and is carried out by using a content management system using SQL and Java for developing. All the information pages are filled in by authorized federal ministries. The responsibilities are recorded on the information pages. Generally, a link system is used for routing the user from one topic to the other and showing him or her way to the 'right' authority using the'right' forms. All of the data are stored in a mySQL data base and full text search options are available and,

Table 1. Electronic government performance 2010.

Ranking	Country	Index
1	Republic of Korea	0.8785
2	United States	0.8510
3	Canada	0.8448
4	**United Kingdom***	***0.8147***
5	**Netherlands**	***0.8097***
6	**Norway**	***0.8020***
7	**Denmark**	***0.7872***
9	**Spain**	***0.7516***
10	**France**	***0.7510***
15	**Germany**	**0.7309**
16	**Belgium**	**0.7225**
18	**Switzerland**	**0.7136**
24	**Austria**	**0.6694**
25	**Luxembourg**	**0.6672**
	World region	
1	**Europe**	**0.6227**
2	Americas	0.4790
3	Asia	0.4424
	world average	0.4406
4	Oceania	0.4193
5	Africa	*0.2733*
	European region	
1	**Western Europe**	0.7165
2	**Northern Europe**	0.7113
3	**Southern Europe**	0.5566
4	**Eastern Europe**	0.5449
	Regional average	0.6227

*European countries in the world overview are highlighted in bold letters; top 10 countries are shaded.

because of the extensions made, interfaces to the editing system are available. Following the strategy of the project 'Amtswege Online', all application forms are available as XHTML forms with JAVA script and style sheets and are produced dynamically by means of PL/SQL procedures and can be signed electronically' (Digital Austria Explorer, 2010).

The business service portal USP.GV.AT was launched in January 2010 and is a one-stop-shop portal offering business services (the abbreviation USP stands for 'Unternehmens service portal'). The portal serves as a single entry point to governmental services for businesses. By offering information, communications, and transaction services, the portal intends to help businesses fulfill their information obligations and to reduce their administrative burden. The Business Service Portal is an initiative of the Austrian Federal Government. The information provided is based on the business content originally offered under HELP.GV.AT that has been absorbed by the business service portal. Generally, USP.GV.AT offers a links system, making it easy for businesses searching on a specific topic, contacting the authorities involved, and the forms needed for communication or transaction processing. One focus is offering regulatory news, thereby increasing transparency for businesses and deliver up-to-date information to businesses and enabling transactions processed fully or in the beginning at least partly (with media breaks). The development as communicated on 'Digital Austria' will be processed in different phases. The first one, set up of a full-fledged information portal, was finished by the end of 2010. In 2011, the Business Service Portal will be expanded to include numerous electronic processes, such as Finance Online. The aim is to set up a one-stop-shop where businesses can obtain any information they need and also fulfill their own disclosure obligations quickly and efficiently. The Business Service Portal was developed in cooperation with the Austrian Federal Chancellery, The

Austrian Federal Ministry of Finance, and the Austrian Federal Processing Center. A single-sign-on-service including identity and access management will be offered and major federal Electronic Government applications will be integrated. Phase 3 will start in 2013, placing a special emphasis on streamlining administrative procedures, avoiding multiple reporting and information provision, interfaces to ERP systems, and the integration of regional and local governmental applications. The potential benefits of USP.GV.AT are a unique identification procedure using asimple and uniform identity and access management, a one-stop-shop structure (a single entry point to information and transaction services), and increasing time and efficiency through process integration. According to Pieterson and Meerling (2009), governments continuously work on improving their service delivery through 'an array of simple access to channels'. Multi-channel integration, the management of delivery channels, is becoming increasingly more popular, and service channels such as websites and email have reached a high degree of maturity. New channels, such as SMS, chat, or mobile phones 'are awaiting their breakthrough' and multi-channel management's popularity increases (Susanto and Goodwin, 2010; Susanto et al., 2008; Pieterson and Meerling, 2009).

One channel that the Austrian government uses and tends to improve is the internet. The Digital Austria Explorer is a unique electronic government approach in Austria providing all inhabitants and businesses access to over 1,000 forms and approximately 350 government procedures using one single portal. The new portal, developed by Microsoft Austria in cooperation with the Austrian Federal Chancellery was released in 2010. It is a toolbar that, once downloaded and installed, provides the user a virtual environment of the national government. Digital Austria Explorer enables easy access to HELP.GV.AT and USP.GV.AT, all under one flag, the Digital Austria Explorer. Using the Digital Austria Explorer, all national electronic government services including a search engine become available.

Generally, using this electronic platform, citizens and businesses can search for services, use electronic government applications, request certificates, and find useful information about daily services such as doctors, pharmacies, social security benefits, or public transport. After the platform has been installed, the Digital Austria Explorer can be accessed using Internet Explorer. Optionally, the Digital Austria toolbar, which offers fast and easy access to different areas such as news, my help site, my citizen card, my region, Internet security, my Austria and settings, can be activated (BUERGERKARTE.AT). The section 'my HELP' of the Digital Austria toolbar follows the link system of HELP.GV.AT and defines different topics regarding the life spheres of citizens, such as working, housing, education, documents, financial issues, social issues, families, the MYHELP portal, and information for businesses. My HELP is a personalized view on the Digital Austria Explorer. After filling in some relevant information about life spheres and identification using an Austrian citizen card and mobile phone, citizens can use the personalized view to gain faster access to relevant information, data, and forms, finding authorities in the needed region easily. The citizen card is the key to electronic government services and to web services from businesses. The citizen card is increasingly becoming the 'electronic identification for the Internet' and opportunities for using the citizen card are continuing to expand. The Austrian citizen card functionality can be activated on the e-card (the national insurance identification card), a bank card, student ID cards, or other official identity cards (Aichholzer and Strau, 2010). Foreigners can also use this service by filling in their foreign ID and selecting their home country.

Currently, some pilots for foreigners are available. Authentication will be made using an online application within the STORK project of the European Union.

Electronic government for governments and public authorities means organizing and optimizing work processes and procedures in areas such as construction management or electronic file management and the application of new technologies as well as information and communication technologies. Similar to citizens, public authorities have electronic signatures, official ones, which can be used for signing documents. 'The Official Signature is an advanced electronic signature affixed by an authority to an administrative notice or document. In addition to using an electronic signature, the document can also be electronically encrypted. Only the actual recipient of the document will be able to decrypt it and read its content' (Digital Austria, 2010).

The electronic record system (ELAK; the abbreviation stands for 'elektronischer Akt') is part of the Austrian electronic government project and started in 2001 with its roll out in 2004. ELAK is a type of electronic file system and offers the possibility for a completely automatically organized process flow and enables governmental authorities a nearly barrier free cooperation with other administrations. Workflow items are used instead of printed customer applications. Electronic file systems, used as document and workflow management systems for an electronic implementation of internal processes offer a kind of data hub in which different data sources and applications can be integrated and media breaks avoided. Supported by different defined interfaces, the electronic record system, as a core system for administrations, communicates with other systems, applications as well as clients. According to Digital Austria (2010) for the Austrian federal administration, the following interfaces are of main interest: The form server displays forms in graphical user interfaces and is of high importance for citizens. As mentioned by Digital Austria (2010), the 'application forms that are submitted over a web form can be processed directly in the ELAK system due to their standardized data structure and XML syntax. The

submitted application form is forwarded on to the responsible administrative unit for processing without delay.' An electronic payment standard interface offers online banking, paying with credit cards, or mobile phones for fees incurred during procedures. An electronic delivery interface allows the transmission of information, notices, and documents to the intended persons. For a continuous electronic production process for laws, the 'eLaw' approach offers the possibility to follow a law from the draft, introduction to parliament, on to enactment. All federal ministries are linked to a standardized workflow system with an interface to parliament communication. The Legal Information System of Austria is an information system (documentation) on Austrian law operated by the Austrian Federal Chancellery. The system helps to streamline government and offers cost efficient and laws and legislation for both citizens and businesses. The Legal Information System (RIS, the abbreviation stands for 'Rechts information system') covers federal law and federal law gazettes, state law and state law gazettes, municipal law, Law of the European Union, Judicature of the courts and decrees in German. Selected laws are also available in an English translation. 'RIS works like a search engine to provide answers to legal questions by returning a comprehensive list of matches for search queries. RIS is used, above all, to announce legislation that must be declared by law in the Federal Law Gazette and to provide information about laws of the Republic of Austria ' (Digital Austria, 2010).

Electronic government is of interest for all levels of public management. Austrian employees of public authorities are trained for the effective use of new means and the development of a user friendly administration. For training purposes, a training academy has been founded in 2006 offering a comprehensive number of trainings with a strong emphasis on practical relevance and need.

The main participants are managers and employees of ministries (Federal Chancellery Austria, 2010). According to Digital Austria (2010), since the academy was opened, more than 600 employees attended government courses.

United Kingdom

The national portal of the United Kingdom ranked third in the 2010 UN government survey. The United Kingdom is the only country in the Northern Europe region with an increased e-government index value of 0.8147 in 2010 (index value 2008 was 0.7872). Some other countries in this region dropped in their ranking position. Sweden, as an example, had the leading electronic government ranking position in 2008 and due to the regression of online services, the country dropped to rank 12 for world electronic government performance.

The United Kingdom offers, with WWW.DIRECT.GOV.UK, a user friendly portal featuring 16 categories of the most accessed information, for example, motoring, education and learning, home and community, caring for someone, employment, young people, disabled people, parents or UK citizens living abroad. The portal can be accessed in English or Cymraeg. Using the navigation tool bar 'do it online', you can access all 16 categories and search for specific ones (they are sorted by subject or by people) available for online transactions to be conducted. On the main page, deadlines such as online tax are shown, offering a link system to the related topic.

On the site 'help get someone online' (HTTP://HELPPASSITON.CO.UK), the main advantages of online services are shown, followed by an overview of how to get online. For those with a lack of knowledge on how to go online and use online services free 'GO ON' events, computer courses are available and users can search for courses in their regions. Additionally, information on options for low cost internet access is provided in this section. Lists of popular tools (for example, book your practical drive test, job search, pension credit estimator, student finance, state pension age calculator) and searches (for example, jobs, income support, and passport) fasted users access to commonly used online services.

The 'Back to work' initiative (HTTP://BACKTOWORK.DIRECT.GOV.UK) offers support in job seeking and new skills, such as job hunting tips, online benefit advisor, job seeker's allowance with the main parts job search (search engine for available job opportunities) and job coach (showing the most important steps required for finding a new job including the planning of job hunting and how to sell oneself as a prospective employee). In addition, there are available the 'Central A-Z of central government, a list of central government departments, executive agencies, and non-departmental public bodies, the Directgov innovative (HTTP://INNOVATIVE.DIRECT.GOV.UK) to support developers, exploring new and innovative digital technologies, and engaging with the developer community and Directgov for Kids, for children aged 5 to 11 (HTTP://KIDS.DIRECT.GOV.UK).

Directgov on mobile offers public services for Internet enabled phones. People can access all Directgov articles and contact data on their phone, can find local services, get travel alerts, start job searching or plan door to door journeys. With sending a free text message to a specified phone number prospective users receive a link for accessing Directgov for phones. As an alternative, they can enter WWW.DIRECT.GOV.UK into the phone's internet browser and navigate through the offered services, which are optimized in a mobile friendly format (for example, newsroom articles, local job search, local benefits, energy saving options, driving tests, access videos, podcasts and interactive tools (exclusive mobile content) or find local services in an area (for example, legal advice, contact details for councils, passport offices, UK online centers).

According to the SQW Limited and Mori Social Research Institute 2005, there are more than 6,000 on-line centers across England. They mainly follow a policy of the Department for Education and Skills and arose from a growing concern about the 'digital divide'. These centers are located in a range of convenient community venues across the country and provide supported Internet access, at zero or low cost, and provide opportunities for people on further information technology related learning and development. One fundamental part of the UK government's programs is electronic service delivery, for that the centers' potential lies in the support of access and the use of electronic government services. This follows a public service reform program started in 2005 making the commitment to make all services online available. With 'MYGUIDE' (WWW.MYGUIDE.GOV.UK) UK citizens have the possibility of getting online using free short courses as a simple way to get started with the Internet. MYGUIDE is a website designed to help people take their first steps with computers and the Internet. Registered users get access to an easy to use email system and online courses as well as online services, such as how to handle online transactions or online job seeking. With ONLINE BASICS, registered users get access to five modules showing how to use the keyboard, mouse, email, and online search, including safety issues and Internet skills.

UK online centers can be reached at WWW.UKONLINECENTRES.COM. The online centers are operated by Ufi Ltd., which was created by the government in 1998, giving the permit to use new technologies to transform the delivery of learning and skills across the United Kingdom. Learndirect, an initiative launched by Ufi in 2000 has become a leading branded online learning provider reaching people in local governments, workplaces, and their homes. Learndirect (WWW.LEARNDIRECT.CO.UK) provides online courses 'to improve employability and transform the skills of the working population. It also provides online training services to employers to improve employee skills and improve business performance and profitability. UK online centers have a cross-government role and support a wide range of policy agendas at the national, regional, and sub-regional level, from adult skills and employability to social and digital exclusion, e-accessibility, and e-government' (Ufi 2010).

By now, Directgov has launched two apps for iPhone and Android phones: Jobcentre Plus and Travel News. They cover jobs and travel information in England, Scotland, and Wales. The Apps can be downloaded for free from iTunes or Android Market. The JobcentrePlus App was launched in March 2010 and supports a mobile local job search. Key locations can be selected and vacancies are shown on Google maps. The Jobcentre Plus App (JCP) 'database is the largest in the UK with more than 10,000 new vacancies every working day, and more than 30% of UK employers advertise their jobs with JCP' (UK government 2010). The Travel News App uses official UK Department of Transport data to offer up to date news on trains, roads, tubes, ferries, and trams. Using the app detailed information on potential delays (type of delay, areas affected, incident severity) is available.

Business link (WWW.BUSINESSLINK.GOV.UK) is the official UK government advice portal offering support services to businesses offering online as well as local support and services. The portal offers services in 14 different categories, for example, starting up, finance and grants, taxes, returns and payroll, employment and skills, international trade) including services for professional advisers (for example accountants, tax advisers) and showing selected business sectors in detail, like transport and logistics, farming, food and drink, manufacturing, construction, private security, and surveillance. The 'do it online' toolbar of Directgov, introduced earlier, is available for the business link site as well. Case studies published on business link (for example, 'Here's how a business plan helped my business. How people tackle real-life challenges and opportunities') show the potential advantages for businesses registering for business link and saving money.

In the 'my business' section, businesses can register and, among other things, can take advantage of business support tools like the calculation of interest due on unpaid debt, sales forecasts, profit and loss forecast templates, different checklists, schemes, action plans, and indicators. Businesses can register using their government gateway card for authentication. People considering starting up a business can indicate this on the business link site and register to take advantage of the offered services to get their business started. After registering for business link without a government gateway card and confirming a received registration link, you receive a user ID that is needed for every log in process. Registered users benefit from the latest updates that are relevant to the business, faster access because of defined user profiles, faster transactions because of storable data for later use. In the 'my business' section, apart from updating your profile, you can manage email alerts, access business support tools, and online transactions and forms. Among other things, you can enroll for government services on the business link site, which are VAT Online, PAYE Online for Employers or Corporate Tax Online, as well as on related websites, such as Certificate of Conformity, EU Transit declaration, or Export declarations. In the section documents and printouts, businesses get support in creating useful documents, like creating a written statement of employment, and samples.

Spain

Spain is leading the Southern European region in electronic government and entered the global ranking of the

2010 conducted UN electronic government survey. Spain offers a 'well-developed online e-services portal (WWW.RED.ES) with clear statements to citizens about its purpose and mission, plus services from its national portal' (United Nations Department of Economic and Social Affairs 2010).

According to the RED.ES website, a public corporate entity belonging to the Spanish Secretary of State for the Telecommunications and Information Society of the Ministry of Industry, Tourism and Trade, RED.ES is the 'entity…responsible for driving the Information Society in Spain and for carrying out projects in line with the strategic priorities set by the State Secretariat for Telecommunications and the Information Society. RED.ES wants to be the 'driver of the networked society for all interest groups'.

Spain ranks third in the ranking of e-participation prepared by United Nations. This is reflected in the latest study United Nations E-Government Survey conducted by the United Nations for the purpose of ascertaining the degree of development of indicators e-government and e-participation. Spain represented a climb of 31 places from the data collected in 2008 and holds a privileged position due to the experienced development of national electronic government in the quality of services provided. In comparison to other countries Spain lies on position 9 for its overall electronic government performance with a high online service index of 0.7651 (rank 5) and a high e-participation index of 0.8286 (rank 3) but on the opposite with a weak telecommunication infrastructure index of 0.5100 (rank 30). In fact, as the registration procedures or civil registration of a new birth, citizens are still forced to move physically to the appropriate administrative office. This leads to the partly weak but, in an international view, mid-point position of Spain. Because of the tremendous improvement of electronic government services within the last years along with Singapore and Bahrain, Spain received an electronic government special award for 'making significant progress in improving its e-service delivery and strengthening citizen engagement through e-participation' (United Nations Public Administration Network, 2010).

E-government development and e-participation index

The United Kingdom, ranked fourth in the e-government development index list, has an index value of 0.8147 consisting of 0.2634 for online services, 0.2364 for telecommunication infrastructure and 0.3149 for the human capital component. Spain, the designated number nine in the e-government development index list, has an overall index value of 0.7516, consisting of 0.2601 for online services, 0.1683 for telecommunication infrastructure and 0.3231 for human capital component. Austria, ranked number 24 in the e-government development index list, has an overall index of 0.6679, consisting of 0.1619 for online services, 0.1893 for telecommunication infrastructure and 0.3176 for the human capital component. All countries lie above the European average index value of 0.6227 and the index value of developed countries (0.6542). The online service index, telecommunication infrastructure index and human capital index, all with their components are shown in Table 2. The online value index for the United Kingdom (rank 4) and Spain (rank 5) considering the total value and the structure of the components is nearly equal, whereas Austria has about half the index value of the other countries (rank 34), showing a low transaction level of 28 points (with values about 70 and above for the other countries) and 12 points for connected services, which is half of the others performance with 25 points both. The Austrian performance for online services with 0.4762 is similar to the European index value of 0.4354. The United Kingdom holds also for the telecommunication infrastructure index rank four with an index value of 0.7164, whereas Austria and Spain range on rank 21 and 30 with values below 0.60 and slightly above the European value of 0.4844. It is significant that in Austria, the rate of mobile subscribers per 100 inhabitants with 129.71 is higher than the values of the leading United Kingdom (123.41 subscribers per 100 inhabitants). Spain is far below with less than 112 mobile subscribers, which reflects the European average value. For the human capital index 62 of the 192 UN member countries have values higher than 0.90. Spain, rank 12 in the list, has an adult literacy rate of 97.90, which is below the European average of 98.53, whereas United Kingdom and Austria with 99.00 lie above the European average. Spain has the highest combined gross enrollment rate for primary, secondary, and tertiary schools (97.96). All countries lie above the European average of 86.92. Significant for the e-participation index is that Spain has rank 3, before the United Kingdom on rank 4 and far below Austria on rank 21. Spain leads with an index value of 0.8286, followed by the United Kingdom with 0.7714. Austria has an value of 0.500, which is much lower than the others but still higher than the low European average value of 0.3236. The United Kingdom is leading with its online service index and telecommunication infrastructure index but behind Spain and Austria regarding the human capital index and only slightly above the European average. Spain has a good online services index holding rank 5, behind the United Kingdom on rank 4, but weak telecommunication infrastructure performance (rank 30) and near the European average. Nevertheless, Spain is leading (rank 3) for e-participation, more than doubling the European average. Austria in leading for its telecommunication infrastructure index, but is near the European average for online services and human capital. On a whole, with its performance, the country lies below the average for Western Europe and has a performance similar to the total European average. According to the UN electronic government survey 2010, all three countries are leading in transactional and connected electronic

Table 2. Electronic government development index (United Kingdom, Austria and Spain including European average).

Online services index						
			points			
International rank	Country	Index value	Emerging information services	Enhanced information services	Transaction services	Connected services
4	United Kingdom	0.7746	61	87	71	25
5	Spain	0.7651	60	88	68	25
34	Austria	0.4762	46	64	28	12
	Europe	0.4354				

Telecommunication infrastructure index							
			Estimated per 100 inhabitants				
International rank	Country	Index value	Internet users	Telephone lines	Mobile subscribers	PCs	Fixed broadband
4	United Kingdom	0.7164	79.62	54.24	123.41	80.23	28.21
21	Austria	0.5736	59.37	40.08	129.71	60.69	21.49
30	Spain	0.5100	56.70	45.41	111.68	40.04	20.22
	Europe	*0.4844*	*53.15*	*42.31*	*113.24*	*38.90*	*18.86*

Human capital index				
			Percent	
International rank	Country	Index value	Adult literacy rate	Combined gross enrollment rate for primary, secondary and tertiary schools
12	Spain	0.9792	97.90	97.96
28	Austria	0.9598	99.00	89.94
32	United Kingdom	0.9542	99.00	88.27
	Europe	0.9464	98.53	86.92

E-participation index		
International rank	Country	Index value
3	Spain	0.8286
4	United Kingdom	0.7714
21	Austria	0.5000
	Europe	0.3236

providing e-services to citizens in a seamless manner, where information is efficiently transferred between departments and agencies.

Spain has, with an index value of 0.8286, a leading government, having integrated back office operations and position (rank 3) in e-participation, following the Republic of Korea (index value 1.000) and Australia (index value 0.9143) on the top of the list, and followed by New Zealand and

the United Kingdom, both on rank 4 with an index value of 0.7714. The United Kingdom and Spain are countries with highpoints for connected services (25 points each, with highest points of 38 for Australia), ranking on position 5 of countries with highest values for connected services. Considering e-participation for all three countries, Spain is leading. Countries are providing avenues for direct impact on how governments operate to their citizens. E-participation changes the dynamics between citizens and govern-ments, for example, using technologies like Web 2.0 and social networking tools. 'An environment that decision makers and politicians must adjust to and incorporate in their daily work' was created (United Nations Department of Economic and Social Affairs, 2010). The leading country worldwide for e-participation is the Republic of Korea (e-participation index of 1.000), followed by Australia (index value 0.9143) and in the third position Spain with an index value of 0.8286). The United Kingdom holds position 4, together with New Zealand, with an e-participation index value of 0.7714. Considering the e-participation utilization levels, more than 140 countries reach a level between 17 and 30%, about 30 countries reaching a level between 30 and 60% with extreme values of 4 countries using 60 to 100% e-participation and about 13 countries, which do not use e-participation on a whole. According to the UN government survey 2010 more than 50% of the best performing countries in e-participation are in Europe. Considering the quality of the e-participation websites of selected countries, Spain is leading the countries with a e-participation utilization rate of 30 to 60% with a total score of 57.89%, which lies slightly below the lowest value of countries having an utilization rate higher than 60%, with Bahrain as an example, having a performance of 64.91%. Basically, the e-participation rate is a combination of the performance for e-information, e-consultation, and e-decision making.The United Kingdom is in the same utilization rate range (30 to 60%) with a performance of about 50%. Austria is not included in the countries selected for the UN government survey 2010, considering e-participation performance.

According to Aichholzer and Allhutter (2009), in Austria there is shown a remarkable increase of e-participation projects and initiatives and e-participation is a subject of public policies in Austria.

THE WAY FORWARD

At the beginning of electronic government, mostly technological problems had to be solved, but nowadays, the main task for offering user friendly electronic government is to join fragmented governmental services and improve the services offered by public administration. When evaluating electronic government approaches, potential pilot projects have to be identified and prioritized considering impact and feasibility. Prioritization should be verified against independent market research and internal government surveys. According to Botterman et al. (2008), digital services provided by the administration should be more responsive to customer needs, and more individualized and allowing users to tailor the services to their personal requirements. 'Increasingly, users should be able to design, create, and self-direct their own services, while providers will be able to differentiate and target recipients.

Governments and public administrations must make better use of ICT to improve monitoring and evaluation techniques. This will allow them to increase their performance and to enable greater diversity in governance outcomes and effects and to increase the reliability of the ICT system in terms of privacy protection and security.' (European Commission, e-Government Sub group 2009).

An international environment should be created, connecting all participating government as well as its authorities, to make it possible for all of these organizations to interact and to connect with each other, businesses, citizens, governmental authorities (European Commission, electronic government Sub group 2009). On the national level in most European countries, this approach is implemented, but there are, apart from some pilots explained, no established cross-border applications available.

CONCLUSION

Since the 1990s, economies have experienced changes due to modern information and communication technologies by which governments have been affected as well as the public and businesses. For governments, a new age of interaction has begun: new information, communication, and transaction methods led governments to start reorganizing their business processes, defined which processes could be processed electronically and who the current interaction partners are and how their characteristics, expectations and limitations influence governmental service provision.

Nowadays, almost every country has taken the required steps for enabling and offering electronic government to its stakeholders. To increase the popularity of electronic government countrywide, simple and easy access is required. One goal for the near future, or in some countries where an already implemented strategy is to offer a one-stop/one-click application to citizens, businesses, governmental authorities and friendly governments as well, is to be able to offer access to virtual offices and to reduce administrative burdens.

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