

# DEVELOPMENT OF THE E-GOVERNMENT MARKET IN THE EUROPEAN UNION: AN ANALYSIS OF THE SUPPLY VERSUS DEMAND SIDES

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*E-government represents one of the most palpable results of the dynamic development of the information and communication technology. Defined mostly as an intensive use of information technologies to provide public services, e-government has been approached in the literature rather from a technological perspective, with a significant importance given to the supply and a lower attention paid to the demand side. The increasing interest in taking into consideration the demand side in the development of the e-government initiatives and projects has created the foundation for a shift in the way the conceptual framework for e-government planning and implementation is defined, from the technology infrastructure and costs to the customer-centric character of all the efforts done.*

*The European Union put e-government on its agenda aiming to improve access to the public information and services, increase transparency of public administration, exploit effectively the information technology within public administration, and establishing e-procurement. The development of the e-government services in the Member States, as it is expressed by the data regarding the supply and demand side, has been conducted in a more or less different manner that led, at the Union's level, to a relatively high availability but a rather low usage of the specific services.*

*The paper explores the relationship between the e-government supply and demand based on the secondary data referring to the public services available to the citizens (as these are defined by the Eurostat methodology) and the usage of these services by the individuals, integrating them through an analytical matrix inspired by the BCG model. Probably the most important conclusion of this analysis states that development of the e-government services has not been accompanied by measures meant to stimulate their usage in the most of the European Union Member States. The analytical matrix allowed also the identification of the question mark, star, cash cow and dog Member States in terms of the e-government market development.*

*Keywords: e-government market, demand, supply, European Union*

*JEL Classification: M31*

## **Introduction**

The recent dynamic development of new information and communication technologies have changed significantly the everyday life of all the members of the society and offered the government new possibilities for providing citizens and businesses with better, more efficient services (Verdegem and Verleye 2009: 487). As the consumers throughout the world expect twenty-four hours a day, seven days a week availability in their commercial interactions, citizens, in their role of consumers of democracy, tend to expect the same from their government (Evans and Yen 2006: 207-208).

Encapsulating a wide variety of meanings ranging from policies that foster the development of information infrastructures to particular measures for combating the “digital divide”, e-government is defined as the use of technology, particularly the Internet, as a means to deliver

services to citizens, businesses, and other entities (Akman et al. 2005: 240). In a broader sense, e-government has been defined as the intensive use of information technologies for the provision of public services, the improvement of managerial effectiveness and the promotion of democratic values and mechanisms (Gil-Garcia and Pardo 2005: 187-188).

A significant part of the literature on e-government assumes that once the correct technology is implemented and accessible to the citizens, benefits will be delivered in terms of reduced costs, technical efficiency, greater access, accountability and transparency, and even greater 'e-participation' and 'e-democracy'. Yet, even technically successful, systems fail if intended recipients simply do not use them (Gauld, Goldfinch and Horsburgh 2010: 184).

A study conducted in the Netherlands has found that the majority of the respondents perceives rather positive the usefulness, tend to trust and intend to adopt government e-services (Horst, Kuttschreuter, and Gutteling 2007: 1850). Another study, conducted in Australia and New Zealand, addressing the human demand-side of the e-government, has found that the majority of respondents are reluctant to use some of the more sophisticated transactional e-government measures, the high users of information and communication technology are more likely to use e-government measures, and are more positive towards e-government in general (Gauld, Goldfinch and Horsburgh 2010: 184).

Successful implementation of e-government imposes changes in business processes that are performed inside governmental institutions, despite of many limitations such as the rigid structures and political reasons (Indihar Stemberger and Jaklic 2007: 229). Understanding the e-government processes of policy making is critical for the evaluation of the e-government initiatives and enablement of the appropriate technical, managerial, and political adjustments to be done by the public managers (Yildiz 2007: 661).

The conceptual framework for e-government planning and implementation surrounds the traditional marketing mix components – product, price, place, and promotion, with the customer focus perspective of customer relationship management, encompassed in the discipline and rigor of program management (Rose and Grant 2010: 32).

Promoting the use of e-government among citizens and businesses, suppose accomplishment of two interrelated actions: first, customers must be educated with respect to the scope of services and utility of the e-Government initiatives; secondly, customers must be convinced that use of the e-government applications will provide value to them (Rose and Grant 2010: 30).

The European Summits at Lisbon and Feira put e-government on the European agenda aiming the development of Internet-based services to improve access to public information and services, the improvement of transparency of public administration by using the Internet, full exploitation of information technology within public administration, and establishing e-procurement (Strejcek and Theil 2002: 305).

### **Methodological Notes**

Data referring to the e-government availability (supply side) and, respectively, individuals using the Internet for interacting with public authorities (demand side) in the European Union countries between 2001 and 2010 have been collected from the Eurostat database.

**E-government availability (supply side)** measures the online availability of 20 elementary public services based on a sample of public authorities' web sites (such as central government, regional and local administration, police and social security organizations) agreed with Member States as relevant for each service. The public services for citizens measured are: income taxes, job search services, social security benefits, personal documents, car registration, application for building permission, declaration to the police, public libraries, birth and marriage certificates, enrollment in higher education, announcement of moving, and health-related services. The public

services for businesses measured are social contribution for employees, corporate tax; value added tax, registration of new companies, submission of data to statistical offices, customs declarations, environment-related permits, and public procurement.

**E-government usage by individuals (demand side)** measures the ratio of the individuals aged 16 to 74 that use the Internet to interact with public authorities, respectively for obtaining information from public authorities web sites, downloading official forms, sending filled in forms.

Percentages expressing the availability and usage of the e-government services at the level of the European Union and each of the Member States have been considered to construct an **analytical matrix of e-government services development and employment** inspired by the BCG matrix, where each of the Member States has been positioned in relationship with the average European performances in one of the four quadrants: (1) **question marks** (e-government supply above and e-government demand below the European average), (2) **stars** (e-government supply and demand both above the European average), (3) **cash cows** (e-government supply below and e-government demand above the European average), and (4) **dogs** (e-government supply and demand both below the European average).

### Main Findings

There are two main conclusions that can be drawn assessing the supply side of the e-government market in the European Union: (1) the availability of the e-government services, as it is defined in terms of the Eurostat methodology, is high: as an average, 84.3 % of the elementary public services are available at the EU level; (2) dynamics of the supply side is more than impressive: in just three years, the availability of the elementary public services has increased, at European level, from 58.3 % to 84.3 %.

**Table 1. E-government availability (supply side) in the European Union countries 2001–2010**

Countries	Years							
	2001	2002	2003	2004	2006	2007	2009	2010
Belgium		25.0	35.0	35.0	47.4	62.5	68.7	78.7
Bulgaria	-	-	-	-	-	13.7	40.0	70.0
Czech Republic	-	-	-	31.2	33.3	57.5	62.5	73.7
Denmark	31.6	61.1	72.2	60.5	65.8	60.5	84.2	94.7
Germany	20.0	35.0	40.0	47.4	48.7	71.9	73.7	94.7
Estonia	-	-	-	65.8	81.6	72.5	92.5	93.7
Ireland	22.2	53.7	60.2	51.8	51.8	51.8	79.6	100
Greece	10.5	31.6	31.6	31.6	30.0	45.0	45.0	47.5
Spain	30.0	40.0	40.0	55.0	56.7	68.7	80.0	95.0
France	25	36.7	50.8	50.0	65.0	72.5	77.5	85.0
Italy	15.0	35.0	46.7	54.4	61.4	68.7	68.3	100
Cyprus	-	-	-	25.0	37.5	46.2	51.2	55.0
Latvia	-	-	-	6.2	10.0	27.5	66.2	93.3
Lithuania	-	-	-	40.0	42.5	36.7	61.7	71.7
Luxembourg	5.0	5.0	16.2	21.2	21.2	41.2	64.5	72.4
Hungary	-	-	-	15.0	50.0	42.5	52.6	65.8
Malta	-	-	-	40.0	78.3	91.2	100	100
Netherlands	5.3	21.0	26.3	32.9	56.1	63.2	71.0	94.7
Austria	15.0	20.0	69.7	75.9	83.3	100	100	100

Poland	-	-	-	10.0	20.0	21.2	55.3	78.7
Portugal	31.6	34.2	39.5	42.5	61.7	81.2	100	100
<b>Romania</b>	-	-	-	-	-	<b>37.5</b>	<b>47.5</b>	<b>60.0</b>
Slovenia	-	-	-	45.0	68.7	91.2	95.0	95.0
Slovakia	-	-	-	15.0	20.0	30.0	56.2	62.5
Finland	33.3	50.0	61.1	69.4	63.9	65.3	86.1	95.0
Sweden	27.8	69.4	69.4	76.3	76.3	75.0	95.0	100
United Kingdom	23.5	36.1	50.0	58.8	67.5	77.6	93.0	98.2
<b>EU 27</b>	-	-	-	-	-	<b>58.3</b>	<b>72.9</b>	<b>84.3</b>

Source: Eurostat.

In terms of availability, Ireland, Italy, Malta, Austria, Portugal and Sweden have reached the maximum level of 100 %, while United Kingdom, Spain, Slovenia, Finland, Denmark, Germany, Netherlands, Estonia, Latvia, and France are above the European average. The lowest levels of e-government availability have been registered in Greece, Cyprus, and several countries of the Central and Eastern Europe – Romania, Slovakia, Hungary, Bulgaria, Lithuania, and Czech Republic. Somewhat surprisingly, Luxembourg, Belgium and Poland have availability below the European average.

There are two main conclusions that can be drawn assessing the demand side of the e-government market in the European Union: (1) the usage of the e-government services by the individuals is rather low: as an average, only 28.1 % of the individuals are accessing the public services available online at the EU level; (2) dynamics of the supply side is positive but far less impressive by comparison to that of the supply side: from 2004 to 2010, the degree of e-government services usage has increased, at European level, from 19.6 % to 28.1 %.

**Table 2. Individuals using the Internet for interacting with public authorities in the European Union countries 2002–2010**

Countries	Years								
	2002	2003	2004	2005	2006	2007	2008	2009	2010
Belgium	-	-	-	15.9	25.6	20.7	14.3	27.2	27.8
Bulgaria	-	-	3.9	-	5.7	4.3	6.4	7.9	12.8
Czech Republic	-	3.4	3.1	3.3	-	14.0	13.1	22.8	15.3
Denmark	35.1	39.4	42.5	-	39.3	57.7	41.3	65.4	68.2
Germany	14.0	23.3	31.3	-	27.8	39.1	31.1	35.3	34.6
Estonia	-	-	14.2	29.0	26.6	27.4	33.0	43.0	46.9
Ireland	-	9.6	11.4	14.4	21.3	26.4	21.2	23.3	22.3
Greece	3.5	6.1	7.2	4.7	5.5	9.5	8.8	10.7	10.9
Spain	-	19.5	22.0	22.5	23.7	25.1	27.8	28.6	30.9
France	-	-	-	-	24.4	36.6	40.5	36.0	29.7
Italy	-	-	-	13.0	14.8	15.2	13.8	15.1	15.9
Cyprus	-	-	10.4	10.9	12.0	18.4	14.9	21.1	20.6
Latvia	-	-	12.1	12.2	22.6	17.0	14.4	22.2	30.7
Lithuania	-	6.0	8.9	11.3	12.6	17.6	18.2	17.7	18.0
Luxembourg	14.9	25.0	35.6	38.2	36.3	44.2	41.6	44.4	44.9
Hungary	-	-	14.9	15.1	13.6	21.7	22.2	22.9	26.3
Malta	-	-	-	18.0	14.0	21.9	18.1	22.7	25.1
Netherlands	11.6	14.7	17.2	40.7	46.0	49.1	48.1	49.9	55.0

Austria	7.9	14.4	17.6	24.9	28.9	24.0	36.2	35.4	34.9
Poland	-	-	11.9	10.7	-	12.1	14.0	16.3	18.0
Portugal	3.9	9.7	10.3	11.8	14.0	16.8	15.2	18.0	20.5
<b>Romania</b>	-	-	<b>2.5</b>	-	<b>2.6</b>	<b>4.0</b>	<b>8.5</b>	<b>5.8</b>	<b>6.3</b>
Slovenia	-	-	11.7	17.6	28.0	28.1	29.2	30.5	40.4
Slovakia	-	-	20.9	23.7	27.2	20.1	26.0	26.0	32.8
Finland	31.4	38.5	43.3	44.6	40.5	43.2	46.3	45.0	48.6
Sweden	40.0	41.1	35.8	48.7	-	47.2	45.1	48.2	56.9
United Kingdom	6.4	18.8	19.5	22.1	-	32.9	26.1	29.7	32.8
<b>EU 27</b>	-	-	<b>19.6</b>	<b>20.7</b>	<b>21.5</b>	<b>26.9</b>	<b>25.5</b>	<b>27.5</b>	<b>28.1</b>

Source: Eurostat.

Countries with percentages far above the European average in terms of the usage of e-government services by individuals were, in 2010, Denmark, Sweden and Netherlands, where more than a half of the population has used e-government applications for interacting with the public authorities. Finland, Estonia, Luxembourg, Slovenia, Austria, Germany, Slovakia, United Kingdom, Spain, Latvia, and France were above the European average. The lowest levels of e-government usage have been registered in Romania, Greece, Bulgaria, Lithuania, Czech Republic, Italy, Poland, Portugal, Ireland, Cyprus, Malta, Hungary, and Belgium.

Assessment of the correlation between the supply and demand sides of the e-government services reveals that a connection of an average intensity, Pearson correlation coefficients calculated for the years 2007, 2009, and 2010 having the following values: 0.4068 (2007), 0.5324 (2009), and 0.4959 (2010). This means that development of the e-government services has not been accompanied by measures meant to stimulate their usage by the individuals: the extensive focus of the public authorities on making available the e-government services has determined them to neglect the communication to the citizens in order to present, explain, and convince them to use on a larger scale these services. Another possible explanation of this disparity is the lack of concordance between the real needs of the citizens in terms of the public services and the range of these services made available online by the public authorities.

Analysis of the e-government market in the European Union in terms of demand and supply using the matrix of e-government services development and employment, leads to the following positioning of the Member States:

**-question marks** (e-government services supply above and demand below the European average): four Member States – Ireland, Italy, Malta, and Portugal – are positioned in this category. As an interesting fact, all these countries have apparently solved the e-government infrastructure, as the availability of the specific public services is 100 %! By contrast, the usage of the e-government services is below the average, which raises at least two questions: first, how opportune was the investment of the public money in developing the e-government services in terms of the society's and citizens' needs for an effective public administration? Secondly, how appropriate was the promotion of the usage of these services among the consumers in terms of the communication effectiveness regarding the usage of these services?

**-stars** (e-government services both supply and demand above the European average): twelve Member States are positioned in this quadrant – Denmark, Germany, Estonia, Spain, France, Latvia, Netherlands, Austria, Slovenia, Finland, Sweden, and United Kingdom. From these, only Austria and Sweden have managed to reach 100 % coverage in terms of the e-government services provided to the public. The development of e-government market in these countries should consider both expanding the range of specific services made available

to the public and increasing the usage of these services, with a different focus from a market to another;

**-cash cows** (e-government services supply below and demand above the European average): Luxembourg and Slovakia are the only two countries in which citizens are using more intensively the e-government services provided to the public. The development of e-government market in these countries should consider both expanding the range of specific services made available to the public and increasing the usage of these services, with a focus on the range of e-government services. It is rather difficult to conclude that Luxembourg and Slovakia may be viewed as potential models for the development of the e-government market in the European Union, their demographic, economic, and technological profile being atypical, to a certain extent, for the EU Member States;

**-dogs** (e-government both supply and demand below the European average): nine countries are positioned in the quadrant having the poorest situation, out of which six are from the Central and Eastern Europe – Bulgaria, Czech Republic, Lithuania, Hungary, Poland, Romania, and Belgium, Greece, Cyprus completing the group. These countries should consider in the development of their e-government markets both the significant enlargement of the range of specific services provided to the public and a more consistent effort to increase the usage of these services.

### Conclusions and discussion

The current e-government projects conducted in each of the Member States of the European Union do not reveal a harmonized approach, but rather a consistent but somewhat uncoordinated effort (Strejcek and Theil 2002: 312). Although the finality of the e-government development is to facilitate access and provide high quality public services lowering the administrative burden, this target will be difficult to be reached in a context characterized by a relatively high availability but a rather low usage of the specific services. Engaging citizens in using on a more extensive scale the e-government services available in the market could represent the focus of the future of the development strategies implemented in the most of the Member States. In the new context of the government – citizen relationships, created by the Internet, a “willing citizenship” is the most important tool for the successful implementation of e-government (Evans and Yen 2006: 228).

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