THE MASS INTEREST IN EGOVERNMENT

Bruno Rossi, Center for Applied Software Engineering (CASE), Free University of Bolzano, Italy.
bruno.rossi@unibz.it

Barbara Russo, Center for Applied Software Engineering (CASE), Free University of Bolzano, Italy.
barbara.russo@unibz.it

Giancarlo Succi, Center for Applied Software Engineering (CASE), Free University of Bolzano, Italy.
gsucci@unibz.it

Abstract

The interest in the eGovernment initiatives of the European Commission has gained constantly interest among expert and technical professionals in recent years. In this paper, we use the post i2010 action lines as a framework of reference for understanding the interest of the mass in eGovernment. We provide a longitudinal study that answers to questions like a) what are the concepts that acquired more interest in recent years? b) what is the distribution of interest in concepts across countries? c) what is the evolution of interest across the years? Answering these questions is useful to understand the involvement of citizens in the strategy toward eGovernment. We mine Internet news and daily newspapers of various European countries and of the United States of America. Findings show that the popularity of the term become evident only around 2005 rapidly increasing in the last two years. There is an overall expectation on the new forthcoming strategy although not all the action lines have been assimilated in the same way.

Keywords: eGovernment, mass interest, European Commission Action Plan.

1   INTRODUCTION

In 2009, the European Commission has called for consultations for the new forthcoming Action Plan i2020. In the consultations, the European Commission has rethought the top priorities in eGovernment of the European governmental policy towards 2020, (Orientation Paper, 2009; Botterman, 2009). One of the assumptions for this change is that eGovernment has experienced an evolution in the core concerns of its policies. In its origins - after the Lisbon agenda in March 2000 (European Council, 2000) - eGovernment focussed on the introduction of ICT as support to governmental policies, as an attempt to reach higher efficiency of the public service and, at a second stage, to the service effectiveness. In particular, the first actions of the eGovernment strategies regarded the provision of on-line services and the Internet literacy of the mass (European Commission, 2007). This led eGovernment to focus on the quality of services offered to citizens as consumers. Later on, the more mature concept of eGovernment moved to value to citizens and benefits to the stakeholders.

The evolution of eGovernment and the related strategies of the EU commissions have been issued in the so-called *Action Plans toward eGovernment*, the Action Plan, i2010 (European Commission, 2005b). This happened five years after the Lisbon agenda. The current consultations for i2020 reveal a new great ferment at political level. The EU government wants to move further, toward a new society based on efficient public services that exploit IT to be competitive, user centric, and integrated. As such, IT needs to support shared services and a single European platform for public services.

What is the response of people to all this effort? Answering to this question is the goal of this article.

If the mission of the European governments is to promote policies toward future developments of the society, one of the goals of the researchers is to understand the effects of the governments' actions. To

this intent, various research projects have been implemented to evaluate the introduction of eGovernment in public administrations (COSPA[1], IntelCities[2], etc). Technical and economic aspects have been analysed and various case studies have been reported (IDABC[3], ISA[4]). Nevertheless, at our knowledge, little is known about the involvement of common people in this technological revolution.

The goal of this article is to analyse the effect on the mass of the Action Plan i2010 after the Lisbon agenda. Namely, we wonder whether the mass - non-expert and non-qualified citizens - perceives what is going on in the European Public Administration.

To this means, we analysed the top three national newspapers of various countries according to their circulation audited on December 31st 2009. We believe that the more interest on eGovernment reaches the mass, the more newspapers publish articles. Under this assumption, we measure the number of publications in top three daily newspapers.

In the following sections, we discuss the action lines and analyse their effects on the mass. In particular, we identify the most popular concepts and their evolution in the last years. This research helped us to identify the correct keywords and concept with whom mining Internet.

The paper is structured as follows. In Section 2, we briefly introduce the EU Action Plans and their lines. In Section 3, we introduce the research goal of this article. In Section 4, we provide some related studies, and we develop then our mining technique in Section 5. We discuss our results in Sections 5 and 6. We discuss our findings in Section 7.

2 EU ACTION PLANS AND ACTION LINES

In this section, we briefly review the evolution of the strategy toward eGovernment that motivates the present study and provides the basic vocabulary that we used to mine Internet articles.

The EU i2010 strategy (European Commission, 2005) originates from the Lisbon agenda (March 2000) and it draws on the Ministerial Declaration adopted at the third Ministerial eGovernment Conference (November 2005, Manchester, United Kingdom), setting expectations for eGovernment 2010.

In the initial i2010 Action Plan, five top priorities for further development of eGovernment have been identified.

1. Access for all. Everybody should benefit from the action of eGovernment. Access on-line to services should be eased for all citizens.

2. Increased efficiency. Member states have been committed to augment ICT presence and to reduce the administrative overhead by 2010. The Action Plan emphasizes the comparison and evaluation of the impact and benefits of eGovernment.

3. High-impact eGovernment services. A number of services delivered across borders make a significant difference to citizens, businesses and administrations. They can consequently act as flagships for European eGovernment.

4. Putting key enablers in place. Certain enablers should be combined to make it easier the access to public services, like the existence of a public infrastructure for electronic document identification.

5. Increased participation in decision-making. ICT must be used to augment the involvement of citizens in the decision-making process and lead towards processes that are more democratic.

---

[1] www.cospa-project.org
[2] http://intelcities.iti.gr/intelcities
[3] http://ec.europa.eu/idabc/
[4] http://ec.europa.eu/idabc/en/document/7706

Bruno Rossi et al.
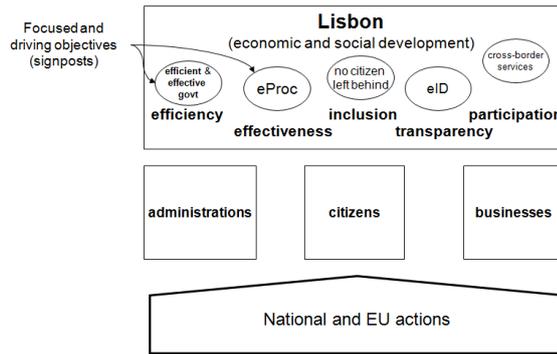The Mass Interest in eGovernment

2

Figure 1: eGov i2010 policy deriving from the Lisbon Agenda (source: Varghese, 2005).

The Action Plan i2010 - part of the EU i2010 strategy after the Lisbon agenda - defined a set of specific objectives to be pursued (Figure 1). Such objectives have been broadly defined as a) to accelerate the delivery of tangible benefits for citizens and businesses through eGovernment, b) to ensure that eGovernment at national level does not create any new barriers in the internal market, c) to extend the benefits of eGovernment to European Union (EU) level by allowing economies of scale.

Various studies on the assessment of the Lisbon strategy show that structural reforms start to pay off but the economic landscape is fragmented:

> *"While the 2007 Strategic Lisbon Report confirms the prominence of ICT in structural reform and half of the Member states have strengthened their R&D and ICT policies, many parts of the EU still lag behind in adoption ICT. ... As the Internet permeates daily life, public expectations and concerns about the information society are changing. Safeguards need to evolve to match technology and market developments, without stifling the huge opportunities that on-line social and economic activity offers."* (European Commission, 2005a)

Therefore, in 2009, the European Commission has rethought the strategy and the goal in eGovernment for the public services. The redefinition is referred as Action Lines post i2010 and is described in the (Orientation Paper, 2009). In this document, the European Commission has defined a classification of the action lines determined by conditions and applications. The conditions are activities that are necessary for the realization of the application-oriented action lines (Table 1). To give an example, interoperability can be used to increase the diffusion and ease the adoption of eIDManagement, eParticipation or potentially any other application. The introduction of the conditions would help defining the new Action Plan towards 2020 providing concrete activities implemented by means of the Applications (Table 1).

Conditions	Applications
Interoperability	eID management
Legal Frame	Service Directive & Human Mobility
Inclusiveness	Cross Border Services
User Centricity	eParticipation
Organisational Change	
Green Government	

Table 1.   Action Lines for a post i2010 policy (source: OrientationPaper, 2009).

Figure 2 illustrates the major changes from the Action Plan i2010 and the strategy toward 2020. The evolution is illustrated reading the diagram from left to right.
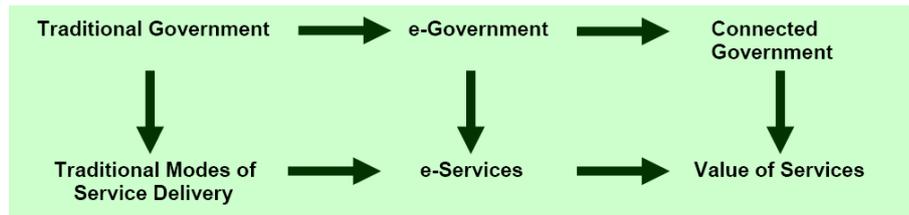
Figure 2.   Evolution of eGovernment. (Source: United Nations, 2008).

3   THE RESEARCH GOAL

As researchers, we are perfectly aware of the great ferment about eGovernment in the technical and political communities, but we wonder whether this debate has ever reached the mass. We believe indeed that the majority of the actions in eGovernment are addressed to the mass as non-qualified and non-expert citizens. Such actions have a potential strong impact on the daily life of such people. As such, we believe that it is of foremost importance to measure the reaction of the mass to the governments' actions in eGovernment. In our work, we assume that such reaction is measured by the interest in the subject and we measure it with the number of articles in non-specialised daily newspapers. This is because news focuses on those arguments that have the foremost potential to reach the mass. We are aware that ours is a specific assumption and other perspective may result in different research outcome. For this reason, we also investigate the interest of the Internet users, mining articles with Google news.

Overall, in our research we address the following questions: is the mass aware of what is going on in the social and organizational life of the citizens? In particular, is the mass interested in eGovernment? How this interest is distributed across the countries in Europe? Are the United States of America considering the European public ferment? Which countries have driven the mass interest? Does the mass see eGovernment as a political, social, or technical revolution?

4   THE CONCEPT OF EGOVERNMENT

The definition of the concept of eGovernment and its evolution in time has been the focus of a large body of research (Fang, 2002; Metaxiotis *et al.* 2004; Yildiz, 2004; Hu *et al.*, 2009). More or less restrictive definitions of eGovernment have been given, but there is still no unique definition of the term (Yildiz, 2004). Nevertheless, it has been generally recognized that eGovernment offers a huge potential to increase the impact of government activities for citizens (Fang, 2002) . In this work, we use the general broad definition as follows:

> *"The use of technology to enhance the access to and delivery of government services to benefit citizens, business partners and employees."*   *(Deloitte Research, 2003)*

Given the non-unique nature of the definition, the research we propose can provide an analysis that can shed some light about the evolution of the general eGovernment concept. A similar approach has been applied to gather more information about the shared definition of eGovernment (Allan *et al.*, 2006; Hu *et al.*, 2009). In particular, authors were interested either in analyzing the evolution of the term in academic studies across a time-frame of 10 years, providing a sort of ontology of the eGovernment concept (Hu *et al.*, 2009) or in identifying differences in the usage of the concept in the academic world (Allan *et al.*, 2006). Our aim is just about identifying the popularity of the term among the masses.

5   THE DATA COLLECTION

Our goal is to investigate the mass interest on eGovernment. We have used Google search engine (*www.google.com/ncr*) to search for articles all over the world. We started with collecting data from the most active European countries in eGovernment. Based on our experience (Russo and Succi, 2009;

the COSPA project, FP6 STREP project[5]) and the case studies reported in IDABC repository[6], we decided to start with Spain, Germany, United Kingdom, Italy, Belgium and France. We later added Hungary to have both a representative of the East Europe and a country whose government we experienced to be motivated toward Open Source initiatives (partner of the COSPA EU project). After a first attempt of data collection, we realized we were too much optimistic. We had problems in mining newspapers' archives for non-Anglo-Saxon countries. Although we tried to use the localized translation of the keywords - e.g. in Spain we translated eGovernment in Admistracion Electronica and in France in administration electroniquè - we could not get a significant sample at the end. Specifically, this happened partially with France, and completely with Belgium and Hungary. With Spain, we succeeded, instead. Therefore, we decided to eliminate the data that were comparably low for France, Belgium, and Hungary and extend the research to USA in order to have a different perspective than a strict European one.

To decide the engine to use in our collection, we have comparatively used the single web archive of the newspaper and Google news. The output of Google news was poor when used with several keywords and per single newspaper: slightly different queries reported different output. Searching in each newspaper's web page resulted more efficient, but we decided to use the advanced search of Google so to have a unique common engine, avoiding any difference in the queries, and to use the same algorithm of search. In any case, we compared our method with the single search in the newspaper's engine and we found little differences in our sample test. At the end, we used Google news when we searched for one keyword per time without specifying a specific newspaper and we used the advanced search engine when we cumulative search over several terms in the top three newspapers per country.

For each country and newspaper, we have searched for eGovernment and all its modifications (e.g. e-Government, using Google advanced search). The final data collected consists of hits referring to news appeared in the newspapers during the time window 2000-2009. The time window starts from the Lisbon agenda strategy meeting (2000), that was the official origin in Europe of the debate on eGovernment. Each hit is an html text concerning at least one of the keywords indexed by the date. No video or document has been considered. We have performed a search filtered on all the major national newspapers selecting three for each country under study. To select the three newspapers, we have used the ranking of newspapers by circulation (e.g. for the United States *http://abcas3.accessabc.com/ecirc/newstitlesearchus.asp*) and we have chosen the top three out of them. Table 2 illustrates the newspapers and the total number of articles found for eGovernment.

In addition, to test our technique and to understand the scope of our investigation, we investigate the interest of Internet users, evaluating the number of articles published on the web in the countries under study. In this case, we have searched for all the keywords related to the major action lines of the European Commission (Table 3, per country, using Google news).

---

[5] http://www.cospa-project.org/
[6] http://ec.europa.eu/idabc/

Newspaper	Website	Total for eGovernment	Country
La Repubblica	*www.repubblica.it*	73	I
Il Corriere della Sera	*www.corriere.it*	42	I
Il Sole 24 Ore	*www.ilsole24ore.it*	142	I
El päis	*www.elpais.com*	32	ES
El Mundo	*www.elmundo.es*	18	ES
ABC	*www.abc.es*	9	ES
The New York Times	*www.nytimes.com*	108	USA
The Wall Street Journal	*online.wsj.com*	53	USA
The Los Angeles Times	*www.latimes.com*	35	USA
Frankfurter Allgemeine Zeitung	*www.faz.net*	192	D
Die Zeit	*www.zeit.de*	58	D
Süddeutsche Zeitung	*www.sueddeutsche.de*	46	D
Le Figaro	*www.lefigaro.fr*	-	FR
Le Monde	*www.lemonde.fr*	-	FR
La Croix	*www.la-croix.com*	-	FR
Times	*www.timesonline.co.uk*	78	UK
Daily Telegraph	*www.telegraph.co.uk*	56	UK
The Independent	*www.independent.co.uk*	58	UK

Table 2.   The major newspapers considered in the research

5.1   Longitudinal Study

For our queries, we use the concepts identified in the Action lines i2010 (Table 1). Table 3 displays the resulting tokens used in search engines.

Concept	Tokens used
eGovernment	*['eGovernment' OR 'e-Government']*
Interoperability	*'interoperability' AND ['eGovernment' OR 'e-Government']*
Legal Frame	*'legal' AND ['eGovernment' OR 'e-Government']*
Inclusiveness	*'interoperability' AND ['eGovernment' OR 'e-Government'] OR 'eInclusiveness'OR 'e-Inclusiveness']*
eParticipation	*['eParticipation' OR 'e-Participation']*
eProcurement	*['eProcurement' OR 'e-Procurement']*

Table 3.   Mapping concepts to tokens in search queries.

For each concept, the query consists of a combination of several terms.

6   POPULARITY OF EGOVERNMENT IN EU COUNTRIES

In this section, we discuss the popularity of the term eGovernment in some European countries (United Kingdom, Italy, Germany, Spain, and France) and in the United States. The popularity concerns people posting and discussing the concepts in Internet. For this, we query Google News archives for the term eGovernment and its modification (*egovernment OR e-government)* (Table 7). For countries like Spain we used also the local term for eGovernment (*egovernment OR e-government OR e-gobierno OR "administracion electronica")* and for France we used the query (*egovernment OR e-government OR e-gouverment OR "administration electronique"*). For each country, we used the specific instantiation of the Google News search engine.

The results show a common pattern in the majority of the countries: a decreasing popularity of the term that is particularly evident for UK, and US (Table 4). The highest peak is around 2003. In Spain, there is an evident delay of the popularity and a recent increase.
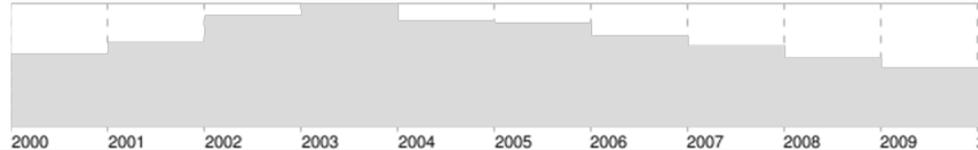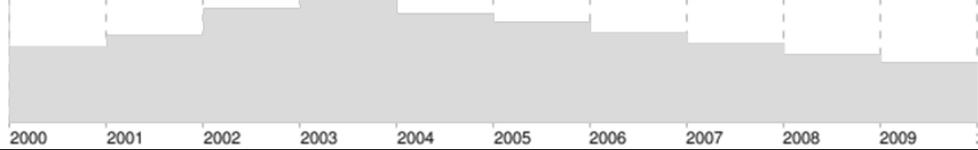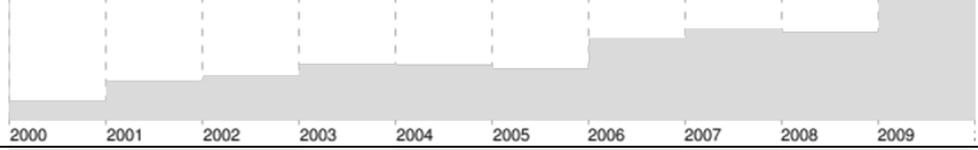
Country (hits)	Evolution (2000-2010)
US (57.100)	
UK (51.400)	
Spain (7.850)	
Germany (5.620)	
Italy (4.480)	
France (1.800)	

Table 4.   Evolution of the popularity of the 'eGovernment' concept. Source: Google.

6.1   Impact of post i2010 Action Lines Concepts in EU Countries

In this section, we evaluate the popularity of the specific concepts established in 2005 with the i2010 Action lines. We considered United Kingdom, Germany, and Italy as target countries – the ones with the majority of data - and we browsed the Internet for the terms in Table 3.

For the United Kingdom, the interest of Internet users is particularly high in interoperability and legal frame in eGovernment. The evolution of their popularity is decreasing in time, though (Table 5). They are still the two most important concepts in eGovernment, but they are more popular around year 2003. The interest in eProcurement is large in the UK. Nevertheless, the trend shows that the interest is decreasing gradually starting from year 2002. Conversely, if we look at ePartecipation, the term acquires more importance in the last few years. eInclusiveness has a peak in 2008 but it does not show a precise pattern or a special interest in the ten years considered.
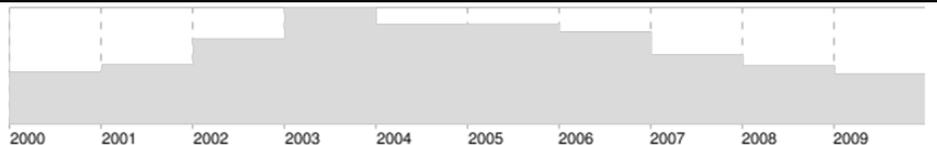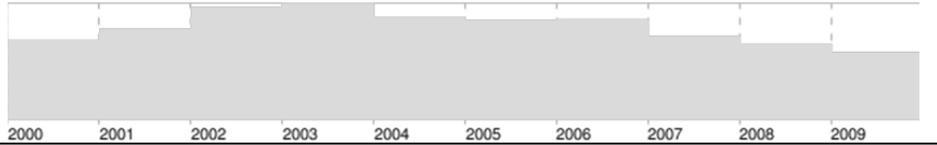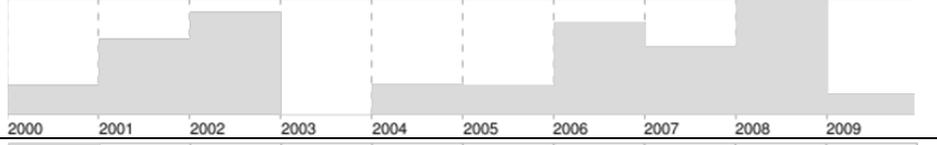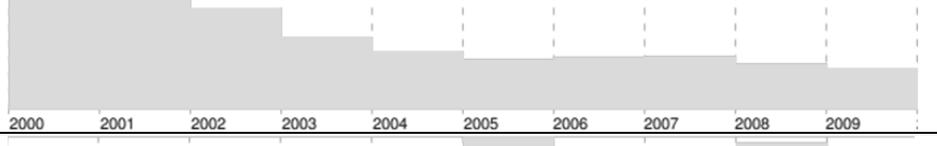
Concept (hits)	Graph
Interoperability (1.640)	
Legal Frame (3.340)	
eInclusiveness (31)	
eProcurement (23.400)	
eParticipation (632)	
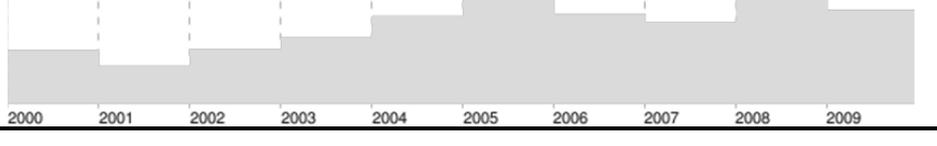
Table 5.   UK – historical results 2000-2009. Source: Google.

For Germany, the response is similar to United Kingdom as to what pertains the legal frame, with peaks in years 2003-2004 and a reduction in interest in subsequent years stabilizing in 2009 (Table 6). The most popular topics result Legal Frame and eInclusiveness. eInclusiveness also shows a decreasing interest in 2008-2009, but has raised the attention of the Internet users constantly in the ten years. There is large interest in eProcurement, but also in this case, the trend is decreasing approaching year 2009. In Germany, eParticipation has never been so considered. There is a peak in 2004 and small interest in 2009.
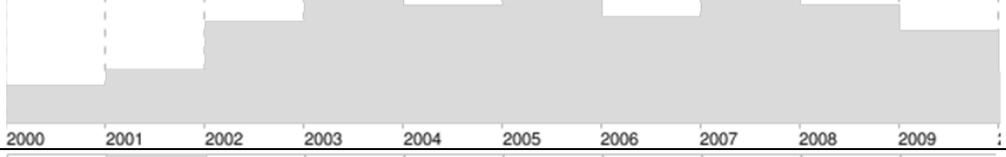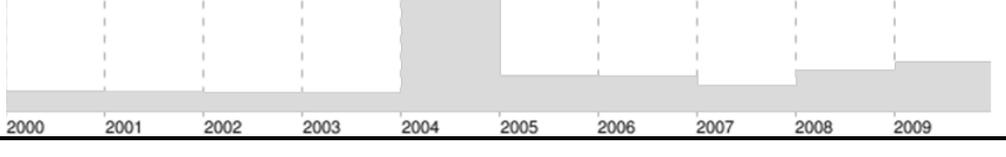
Concept (hits)	Graph
Interoperability (136)	
Legal Frame (375) gesetzlich	
eInclusiveness (396) integration	
eProcurement (1.350)	
eParticipation (30)	

Table 6.   Germany – historical results 2000-2009. Source: Google.

For Italy, the results show a delay in the interest in the first two initial years. Interoperability is the hot topic in eGovernment (Table 7). Legal frames and eInclusiveness have peaks of interest around 2004, but also an increase in interest in 2009. Differently from the other countries examined, the interest for eProcurement is growing in the latest years. Also in the case of Italy, there is a growing interest towards eParticipation in recent years. This is a concept that only recently acquired the interest of the masses.
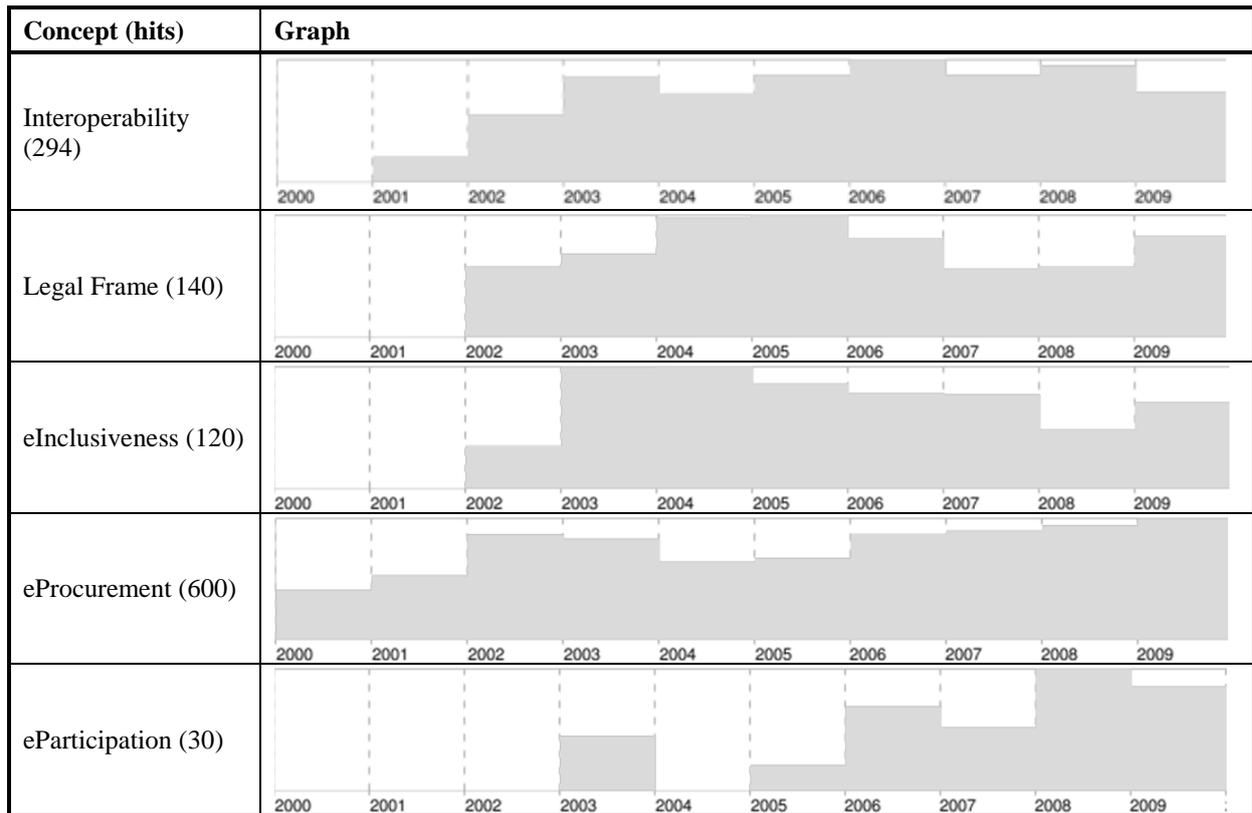
Bruno Rossi et al.
The Mass Interest in eGovernment

9

Concept (hits)	Graph
Interoperability (294)	
Legal Frame (140)	
eInclusiveness (120)	
eProcurement (600)	
eParticipation (30)	

Table 7.   Italy – historical results 2000-2009. Source: Google.

7   EVOLUTION OF THE INTEREST OF THE MASS

Table 8 reports of the cumulative results (over all the terms in Table 3) of our search in the top three national daily newspapers of the countries under study. These numbers significantly differ from the ones found in the previous section as they refer to articles for non-specialised people found in three specific newspapers per country. For example, the trend in Germany shows a very low pace and a small total number. This might be also due to the newspapers culture in Germany and the circulation of specialised magazine in the country. Traditional newspapers might not be willing to be involved in technical issues. There might be some resistance to publish article that cannot be understood immediately by the mass. As such, we would better focus on the type of trend more than on the number of articles. For Germany, the trend is constantly increasing.

In total, Italy has the major number of hits per year followed by Spain and United States of America. Italy and Spain follow the trend we found mining the Internet news.

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Tot
Italy	16	24	32	41	31	18	22	40	78	149	451
Germany	0	2	2	4	4	9	7	19	12	30	89
USA	20	7	14	6	10	6	11	5	37	86	202
UK	8	6	4	3	2	8	6	12	20	32	101
Spain	2	1	4	10	1	7	7	13	24	184	253

Table 8.   Interest of the mass- Cumulative results by country

Bruno Rossi et al.
The Mass Interest in eGovernment

10

Reading the evolution over time (Figure 3), we see a clear peak in number of hits in the last year with Spain that leads the group. Over years, the trend shows a slow pace before 2007 after which a new increase appears.
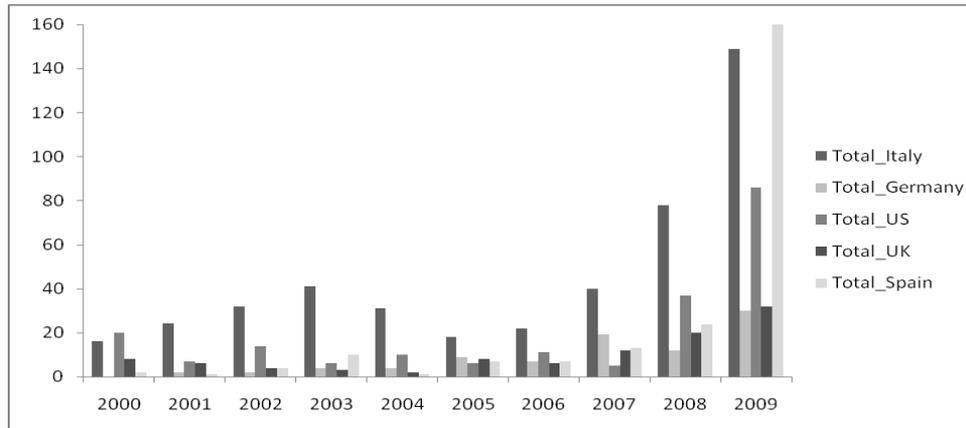

Figure 3.   Interest of the mass - Cumulative results by country

8   DISCUSSION

In our study, we aim at understanding the interest of the mass in eGovernment. Although there is a great ferment among the government, political, and IT professionals, little literature refers of any involvement of non-qualified citizens. Namely, people might not be so excited or aware of this change in public services. To verify our hypothesis, we analysed the information of on-line mass media assuming that journalists write on topics of large and mass interest. As such, we inspected both the internet hits on eGovernment and the corresponding articles in the most circulating daily newspapers of the major countries active in the change of the public services. We also investigated the interest of the Internet users as a comparative means on popularity.

Our analysis reveals that the number of articles referring to eGovernment is increasing in the last 10 years after the Lisbon agenda meeting (March 2000). Nevertheless, our data reports that the increase is slow and therefore the interest in eGovernment has not been fast in taking off. In many cases, articles start to grow after 2004 and the majority of the news refers to the last two years. Notice that the US newspapers follow a similar trend.

Different is the trend of hits in Internet. The information over the Internet (with no control on the source) has a peak about 2003-2004 stabilizing in the last two years. Furthermore, not all the action lines of the European Commission raise the same interest in all the countries. For example, eParticipation is almost neglected in the Italian and German websites in Internet. People of Internet include experts and researchers that have different access and interest in the specific area. The stable trend of the last two years might be connected again with the expectations for the new strategy toward 2020 of the European Commission. Eventually, when the news on the new actions will be officially issued, professional articles will increase to discuss and support future changes in eGovernment.

Overall, from our results, it seems that population is now aware of the Lisbon agenda and the related strategies toward eGovernment. The interest has reached the mass only about 2005, though (Figure 3). This delay might be motivated by the fact that the European Commission issued a well-defined strategy toward eGovernment only in 2005. The interest in eGovernment of the mass is not decreasing and has a peak in 2009. This might be again justified by the forthcoming new Action Plan. Internet users have anticipated the mass interest although not all the action lines have been considered with the same attention. There is an expectation of professionals and researchers for the new forthcoming European plan toward eGovernment. Might it be related to *Transformational Government* (Russo and Succi, 2009; Cabinet Office of the British Prime Minister, 2007)?

9 LIMITATION OF OUR TECHNIQUE

We acknowledge the fact that our data collection might have some limits. The first is the use of Google. The search with Google is extremely sensitive to the sequence of actions one performs to define the token and the whole query. We noticed, in fact, that querying several times for the same concept but with a different type of selection of the dates or using a localization of Google, result with some little variations of the final answer. For this reason, we were very careful in repeating exactly the same actions and we used Google international (*www.google.com/ncr*) for all our searches. Furthermore, we are well aware that searching for a specific term like *e-participation* might result in articles not referring to eGovernment as the term participation is common in other topics and the search engine of Google might find results concerning the two terms "e" and "participation". For this reason, we mined Internet for couple or triples of terms containing eGovernment or its modifications together with the specific term eParticipation. We also inspected samples of our data to verify that articles were pertinent.

REFERENCES

Allan, J.D.O., Rambajun, N., Sood, S.P., Mbarika, V., Agrawal, R., Saquib, Z. 2006. 'The eGovernment Concept: A Systematic Review of Research and Practitioner Literature'. *Innovations in Information Technology*, 1-5.

Botterman Maarten, Millard Jeremy, *et al.* 2009. 'Value for citizens: A vision of public governance in 2020'. Report for the European Commission, Brussels: Information Society and Media.

Cabinet Office of the British Prime Minister, 2007."Examples of Transformational Government" Last accessed on 2009.05.20
http://www.cabinetoffice.gov.uk/cio/transformational_government/examples.aspx

Deloitte Research. 2003. 'At the Dawn of e-Government: The Citizen as Customer'. From http://www.egov.vic.gov.au/pdfs/e-government.pdf; Internet; accessed on 2010.01.16.

European Commission, 2005a. 'The new Lisbon Strategy,' Last accessed 2009.07.10 from http://ec.europa.eu/enterprise/enterprise_policy/competitiveness/doc/industrial_policy_and_economic_reforms_papers_1.pdf

European Commission, 2005b. 'i2010 - A European Information Society for growth and employment,' COM(2005) 229, final. Brussels.

European Commission, 2007. 'The User Challenge Benchmarking The Supply Of Online Public Services. 7th Measurement,' September. 2007, prepared by Capgemini.

European Council, 2000. 'Presidency Conclusion of the Lisbon European Council' (23-24 March 2000). Lisbon.

Fang, Z. 2002. 'E-government in digital era: Concept, practice and development'. *International Journal of the Computer, the Internet and Management* 10 (2): 1-22.

Hu, G., Pan, W., Lu, M., and Wang, J. 2009. 'The widely shared definition of e-Government: An exploratory study,'. *The Electronic Library*, 27: 968-985.

Metaxiotis, K., Psarras, J. 2004. 'E-government: new concept, big challenge, success stories'. *Electronic Government, an International Journal*, 1:141 - 151.

Orientation Paper, eGovernment Sub-group working document, 2009. 'Visions and priorities for eGovernment in Europe. Orientations for a post 2010 eGovernment Action Plan,' Last Accessed on 2009.07.15 from
http://ec.europa.eu/information_society/activities/egovernment/docs/2015_background_doc-210-pvt.pdf

Russo, B. and Succi, G. (2009) "A Cost Model of Open Source Software Adoption" in Weerakkody, V., Janssen, M. Dwivedi, Y. K.(eds.) "Handbook of Research on ICT-Enabled Transformational Government: A Global Perspective". Directorate.

Varghese, A., 2005. 'Interoperable Electronic Identity Management and Authentication for eGov services - an EU perspective,' L-SEC - *Electronic Identity Card, visions, challenges and realisations* May 19, 2005 at Stella Artois Brewery, Leuven, Last accessed on 2009.07.23

from http://download.microsoft.com/download/4/f/d/4fd49a94-8772-4bd0-88ca-bf46e2d029fc/19_MAY_2005/EID2005_EUROPEANCOMM.ppt

United Nations, 2008. 'e-Government Survey 2008: From e-Government to Connected Governance'. Last accessed on 2009.07.22 from http://unpan1.un.org/intradoc/groups/public/documents/UN/UNPAN028607.pdf

Yildiz, M. 2007. 'E-government research: Reviewing the literature, limitations, and ways forward'. *Government Information Quarterly*, 24: 646-665.