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Evaluation Of e-Government Services From The Citizen Perspective

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EVALUATION OF E-GOVERNMENT SERVICES FROM THE CITIZEN PERSPECTIVE

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Abstract

The inversion of reduction of confidence in combination with the need to face lack of resources for public administration has led governments and various governmental institutions to develop and propagate the services of electronic government. Investing millions in these services governments seek for measures and models that will quantify and highlight the profits that come up from these investments. Initially we present a short literature review of the existing indicators applied by the European Union and institutions that measure citizens' satisfaction from the use of electronic government services, as well as the relevant research evaluation models. Afterwards, focusing on the scientific gaps that exist, a conceptual model of citizen acceptance satisfaction with E-government services is proposed and developed. Implications for further research and possible modification to the model are also proposed.

Keywords: *E-government, Citizens Evaluation, User Satisfaction*

1 INTRODUCTION

The trust of citizens in their governments has declined dramatically over the past thirty years [Parent et al 2005]. That declining trust in combination with lack of resources for the public administration led to e-government, which is "the use of information technology to enable and improve the efficiency with which government services are provided to citizens, employees, businesses and agencies" [Carter et al 2005]. Unlike traditional structures, which are hierarchical, linear and one way, e-government delivery systems are nonhierarchical, nonlinear, two way and available 24 hours a day, seven days a week [West 2004].

Consequently, e-government holds promise for improved delivery of many types of public services and for disseminating information about the operation of government. Moreover, it may include opportunities for online political participation [Massberger et al. 2003], but also improve communication between citizens and government [Thomas et al 2003].

In light of these benefits, numerous governments have made huge investments in order to digitalize public administration [Hung et al 2006]. However, could e-government and investment on it improve the situation? Chadwick [2001] finds government web sites to be "predominantly, non-interactive and non-deliberative" and concludes that e-government is not likely to reshape governance. These arguments about the impact of e-government services make imperative the introduction of indicators that measure the success of e-government. According to DeLone and McLean (1992), end user satisfaction (EUS) is one of the most widely used measures. Several studies have suggested that IS failures are due to lack of support and commitment from users [Udo et al 1994, Garrity et al 1998], as information systems do not independently fulfill their needs [Au et al 2008]. In addition, in order to ensure eGovernment success, it is important to assess the effectiveness of e-government and to take necessary action based on these assessments [Gupta et al. 2003]. Although IS success models have received much attention among researchers, little research has been conducted to assess the success of e-government systems [Torres et al 2003, Wang et al 2008].

Based on DeLone and McLean model and adapting constructs from Innovation Diffusion Theory, Theory of Planned Behavior and Theory of Reasoned Action, this study proposes a model that measures user

satisfaction that comes from the use of e-government services, but also identifies and measures the variables on which the use of e-government services has impact. Preliminary results of this research confirm our hypotheses and show which variables should be taken into account when designing an e-government service.

2 RESEARCH BACKGROUND

There are three general types of e-government systems and services: government to government (G2G), government to citizen (G2C) and government to business (G2B). Though e-Government has clear benefits for both businesses and governments, citizens actually receive the widest array of benefits from e-Government [Jaeger, 2003]. Thus, the focus of this study is on G2C systems. Moreover, as the key to making G2C e-Government work successfully does not depend on the technology but the citizens [Akman et al 2005], this study focuses on the measures of G2C e-Government success system from the citizens' perspectives.

A large amount of previous research was concerned with factors that influence user's intention to use and less with factors that influence the actual use; while there is still a gap in the ability of these researchers to capture end user satisfaction in the e-Government information system. Dijk et al (2008) propose a multidimensional model that explains the factors that influence intention to use and actual use of services of the government on the internet, without taking into account variables relevant to the system. Most researchers identify the factors that determine the publics' acceptance-intention to use-, of e-government services [Hung et al 2006, Carter et al 2005, Belanger 2008].

Another issue in the measurement of information systems success and consequently in the measurement of e-government information systems success is which constructs best measure IS success [Rai et al 2002]. DeLone and McLean (1992) comprehensively reviewed the different IS success measures and proposed a six-factor IS success model.

Based on DeLone and McLean model and adapting constructs from Innovation Diffusion Theory, Theory of Planned Behavior and Theory of Reasoned Action, this paper has as primary objective to understand the factors affecting the user satisfaction and as secondary one to find out and highlight the factors on which end user satisfaction has impact. Such information can help managers identify the strengths and weaknesses of their current information system and can guide them to design and develop more fruitful e-government IS in the future.

3 THE CONCEPTUAL MODEL

In accordance with DeLone and McLean, this study proposes a comprehensive multidimensional model that measures user satisfaction that comes from the use of e-government services, but also identifies and measures the variables on which the use of e-government services has impact. This model suggests that information quality, system quality, service quality and perceived net benefit are variables that influence use and user satisfaction in e-government systems. The hypothesized relationship between those variables is based on the theoretical and empirical work reported by DeLone and McLean 2003. As they suggest, positive experience with "use" will lead to greater "user satisfaction". DeLone and McLean also assume that positive or negative net benefit from the perspective of stakeholder of the system will influence and reinforce or decrease the subsequent use and user satisfaction. In addition, this model suggests that e-government effectiveness (West 2004) and behavioral intention (Theory of Planned Behavior, Theory of Reasoned Action) are variables on which user satisfaction has impact on.

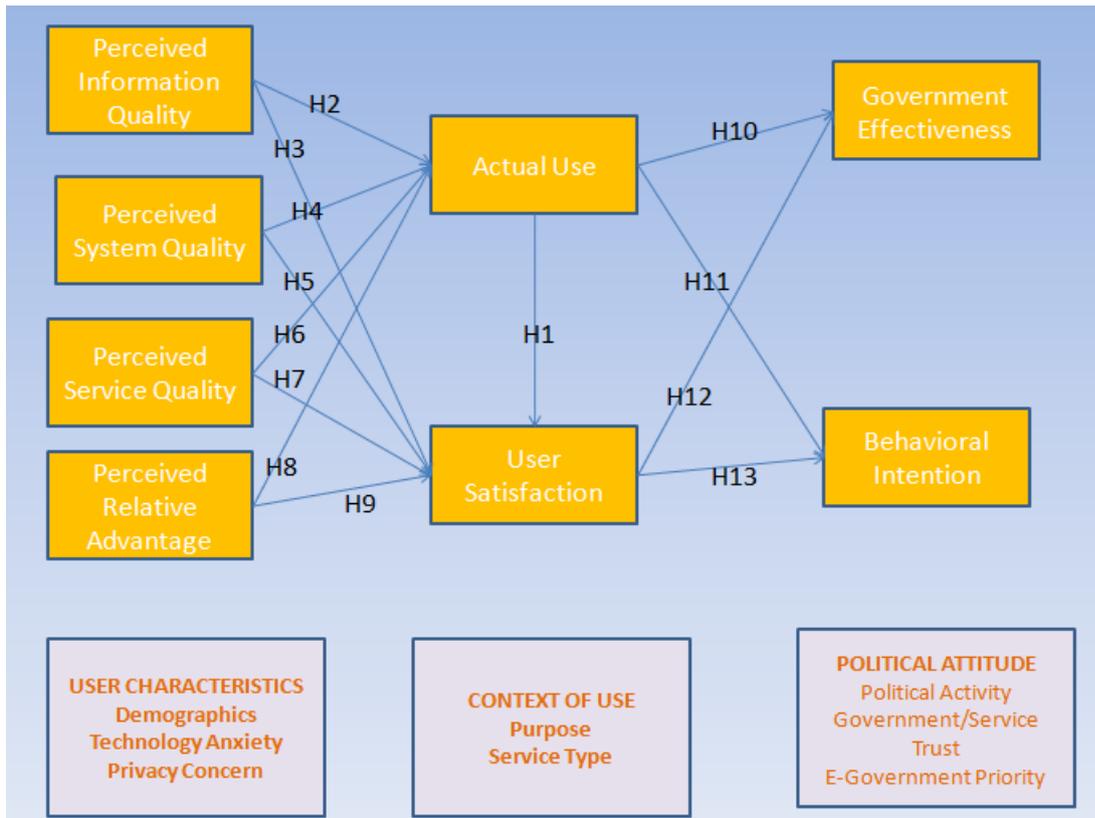


Figure 20: The research Model

At the same time, in this research we are going to analyze the role that some variables play. More specific, we are going to find out whether user characteristics (demographics, technology anxiety, privacy concern), context of use (purpose, service type) and political attitude (political activity, government/service trust, e-government priority) can play the role of moderators in our model.

4 RESEARCH METHODOLOGY

In order to test this model, an internet based survey of Greek citizens, who have already used taxisnet (www.taxisnet.gr), will be conducted. The TAXISnet IT infrastructure, standing for Taxation Information System, has been deployed and operated by the General Secretariat for Information Systems (GSIS) of the Greek Ministry of Finance (GMOF). TAXISnet users receive electronic credentials which enable them to access TAXISnet services, which offer 24x7 availability and real-time response for all transactions. Moreover, TAXISnet is considered as benchmark service in Europe, while it is if not the most used, undoubtedly one of the most used services amongst Greeks.

Regarding the form of the questionnaire that was used in the research, we have to mention that it is divided into 4 parts, which are referred to the attitude of the citizens towards services which are offered through taxisnet.gr. In order to measure the constructs of the model, a five-point Likert-type scale with anchors ranging from “strongly agree” to “strongly disagree”, has been used. Finally, the items used to measure each variable are listed in the table below.

Construct-Variable	Source	Items
Political Activity	Darell M West 2004	1
Government Effectiveness	Darell M West 2004	2

E-government priority	Darell M West 2004	2
User Satisfaction	Mc Kinney, Yoon, Zahedi 2002	5
Behavioral Intention	Mc Kinney, Yoon, Zahedi 2002 Parasuraman, Zeihaml, Malhotra 2005	4
Technology Anxiety	Meuter et al 2003	3
Privacy Concern	Smith, Milberg, Burke 1996	2
Government Trust	Darell M West 2004 Carter Belanger 2005	2
Service Trust	Carter Belanger 2005	2
Perceived Information Quality	Yu Shun Wang, Yi Wen Liao 2008 Au, Ngai, Cheng 2008	4
Perceived System Quality	Yu Shun Wang, Yi Wen Liao 2008 Au, Ngai, Cheng 2008	6
Perceived Service Quality	Yu Shun Wang, Yi Wen Liao 2008 Yu Shun Wang, Yi Wen Liao 2007	4
Perceived Relative Advantage	Yu Shun Wang, Yi Wen Liao 2008	5

Table 10: The items used to measure each variable

5 CONCLUSIONS

When the proposed research has been completed, we should be in the position to answer the following questions: Which are the factors that contribute to the citizens' satisfaction from the use of electronic government services? At what degree does a user feel satisfied? What is the impact of users' satisfaction on public administration?

Based on these research results, the responding public institutions could better evaluate the existing situation concerning the citizens' satisfaction from the benefits of electronic government services, but mainly determining the factors that can change this situation in the future and engrave the suitable strategy. Moreover, the wider repercussion that the use of electronic government services has for the attitude of citizens toward the state will be determined as well as the impression they acquire towards the effectiveness of the central government.

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REPRESENTATION AND STUDY OF POLITICAL BLOGS CONVERSATIONAL PATTERNS

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Abstract

Blogs are considered to be powerful and have great political influence. Political blogs have a potential to shape politics, political discourse and political participation. The paper studies how two recent political events about Pan-Hellenic Socialist Movement, are discussed through blogs. It uses Social Networking Theory and Multivariate Statistical Analysis to examine whether political polarization is reproduced in blogging, for the Greek case. The paper also considers how different political events have different impact on polarization of bloggers' political communication. Findings suggest that polarization is reflected to blogs' conversational patterns. Debate events are associated with more polarized social networks of blogs.

Keywords: *Political Blogs, Links Distribution, Social Networking, Focal Points, Greece*

1 INTRODUCTION

One of the key characteristics of Web 2.0 is the idea of User Generated Content. Users have the ability to create their own content, rather than passively consume that which is created for them by others (Zappen et al. 2008). Blogs provide an easy way for an average person to publish material online sharing in this way a huge amount of knowledge (Hsu & Lin, 2008, Nasr & Ariffin, 2008). Everyone can set up a blog in less than ten minutes with a minimal cost (Drezner & Farrell, 2004). "A major attraction of weblogs is their relative ease of construction/updating and the lack of the need or any special skills in web design or of HTML coding" claimed Pedley (2005, p.95). Blogs have been seen as a good way of circulating new ideas and were multiplied exponentially after the 11/9 as people used them to express their political awareness (Baker & Green, 2005; McKenna & Pole, 2004).

By definition, blogs link to other sources of information usually to other blogs. Barger (1997) who first used the term weblog, defined blog as "a web page where a blogger 'logs' all the other web pages he finds interesting". Drezner & Farrell (2004, p. 5) defined weblogs as "A web page with minimal to no external editing, providing on-line commentary, periodically updated and presented in reverse chronological order, with hyperlinks to other online sources". Nowadays blogging tools provide enhanced features for between-blog interactivity; thus promoting the creation of social networks among bloggers, a key feature to their success (Du & Wagner 2006; Williams and Jacobs 2004). "Perhaps the most important difference between blogs and more traditional media is that blogs are networked phenomena that rely on hyperlinks" mentioned (Drezner & Farrell, 2004, p.7). Drezner & Farrell (2004) also highlighted the fact that links and page views are the "currency" of the blogosphere and Blood (2002) mentioned that the most reliable way to gain traffic to a blog is through a link on another weblog.

Links between blogs take three forms. The first form is that of a "blogroll" that many bloggers maintain. The blogroll occupies a permanent position on the blog's home page (Drezner & Farrell, 2004) and is the list of blogs that the blogger frequently reads or especially admires. "This form evolved early in the development of the medium both as a type of social acknowledgement and as a navigational tool for readers to find other authors with similar interests" wrote Marlow (2004, p.3) Albrecht et al. (2007, p. 506) referred to this form as "connectedness of weblogs". The second form are permalinks and

comments. Comment tools are allowing readers to express their opinions on a weblog entry and permalinks are allowing weblogs link posts with one another. Comments are “reader-contributed replies to a specific post within the blog” (Marlow, 2004, p.3). Comments’ system is implemented as a chronologically ordered set of response and is the key form of information exchange in the blogosphere (Drezner & Farrell, 2004; Mishne & Glance 2006). “Posting volume would be a key determinant of content value” claimed Lu and Hsiao (2007, p. 346). At last are trackbacks and pingbacks. Trackback is a citation notification system (Brady, 2005). It enables bloggers to determine when other bloggers have written another entry of their own that references their original post (Waggener Edstrom Worldwide 2006). “If both weblogs are enabled with trackback functionality, a reference from a post on weblog A to another post on weblog B will update the post on B to contain a back-reference to the post on A” (Marlow 2004). A pingback is an automated trackback. “Pingbacks support auto-discovery where the software automatically finds out the links in a post, and automatically tries to pingback those URLs, while trackbacks must be done manually by entering the trackback URL that the trackback should be sent to” (http://codex.wordpress.org/Introduction_to_Blogging#Pingbacks)

Political blogs are a new form of political participation and have the potential to shape politics and political discourse (McKenna & Pole, 2004). The paper examines the degree of interconnectivity, cohesion and polarisation of Greek political blogs. Based on the relative literature, the paper uses the established blog search engine Technorati.com, in order to track Greek political blogs and provide indicators of their popularity and interconnections. It takes into consideration two political events both considering the Panhellenic Socialist Movement (PASOK). First, the debate that took place on the Web relatively to the election of PASOK’s new President and second the dismissal from the parliamentary party group of Mr Costas Simitis the former Prime Minister of Greece.

2 BLOGS IN POLITICS

Citizens are increasingly using political blogs as a form of political expression and of political participation (Wallsten, 2005). There is an expanding number of situations in which blogs have exercised an important influence over how politics is practiced and policy is developed, have broken major news sometimes contradicted to the point of view of the mainstream media (Jackson 2005; Lankshear & Knobel 2003; Sroca, 2006). Johnson and Kaye (2004) claimed that weblogs are viewed, by web users, as a credible source which provided depth and thoughtful analysis (Andrews, 2003; Regan, 2003) and Pedley 2005 (p. 97) characterized blogs as “gatekeepers of information and news”. Wallsten (2005, p.2) highlighted the fact that some political bloggers, began to attract wide readerships as a result of their discussions of American domestic and foreign policy.

In September 2001 bloggers created a protest against Trent Lott who supported Strom Thurmond’s segregationist stance in the 1948 presidential election at the 100th birthday of Senator Strom Thurmond (Bloom 2003). Bloggers, also echoed the suspicion that “President Bush was using a listening device for assistance during the presidential debate and worries over the validity of voting machines” (Su et al. 2005). In November 2005, bloggers in Germany found that the picture used for the claim of the social marketing campaign had already been used by some Nazis in 1935 (<http://www.spreeblick.com/2006/01/27/you-are-deutschland-too-just-kidding/>). In the US-led invasion of Iraq, blogs posted photos before other media and sometimes were contradicted the point of view of mainstream media like CNN (Lankshear & Knobel, 2003).

Political parties use blogs in order to shape the political agenda, generate resources, mobilize support and reach out to their constituency (Jackson, 2006; Trammell et al. 2006). During election campaigns parties and candidates blogs are used for three main functions: diffusing information to internal audiences; building up a volunteer base; agenda setting of the mainstream media (Bloom & Kerbel, 2005). Jackson (2006, p.295) wrote “during an election campaign a weblog is a mean for a party to promulgate its policies through a virtual network of political bloggers”. An example of a highly successfully blog is Howard Dean’s BlogforAmerica. The blog was used to mobilize supporters and

funding, even though Howard Dean's candidacy was not successful (Kerbel & Bloom, 2005; McKenna & Pole, 2004). Chadwick (2009, p.20) highlighted "The 2004 primary and presidential campaigns in the United States saw the emergence of a campaigning model based on online venues loosely meshed together through automated linking technologies, particularly blogs". According to Albrecht et al. (2007) paradigms that blogs are used as campaign instruments are the 2004 presidential election, the 2005 U.K. general election, the 2005 Danish parliamentary election, the 2005 New Zealand general election, the 2005 German Bundestag election, the 2007 French election and the 2007 Australian Federal Election. At recent presidential elections in USA Barac Obama maintained a blog at his webpage <http://www.barackobama.com>.

There are millions of individual blogs, but within any community only a few blogs attract a large readership (Wagner & Bolloju, 2005). "The vast majority of blogs are probably only read by family and friends, there are only a few elite blogs which are read by comparably large numbers" wrote Jackson (2006, p.295). Drezner & Farrell (2004) found out that the median blogger has almost no political influence as measured by traffic or hyperlinks and they highlighted "This is because the distribution of weblinks and traffic is heavily skewed, with a few bloggers commanding most of the attention. This distribution parallels the one observed for political websites in general. Because of this distribution, a few "elite" blogs can operate as both an information aggregator and as a "summary statistic" for the blogosphere". The same was claimed by Jackson (2006, p.296) who wrote "elite bloggers can act as a "focal point" encouraging influential visitors to congregate around them. To influence the news, political and policy agenda, political actors need to attract an "A" list audience to their weblog".

Blogs have the advantage of speedy publication and an advantage in socially constructing interpretive frames for understanding current events. Blogs appear to play an increasingly important role as a forum of public debate, with knock-on consequences for the media and for politics. In Greece where the ratio of internet users is relatively small there is however an expanding portion of bloggers who comment regularly and have the power to a certain degree and in certain circumstances to trigger off political movements. Posting of opinions in the Internet can be considered as an expression of activated public opinion in contradiction to public opinion, which is recorded through surveys and concerns the wider public.

3 THE CASE STUDIES REGARDING POLITICAL EVENTS

This paper studies as cases two political events, both considering the Panhellenic Socialist Movement (PASOK). The first case is about the recent debate that took place on the Web relatively to the election of PASOK's new President. Pan-Hellenic Socialist Movement (PASOK) (one of the two major parties in Greece) was defeated on the national election of September 16 2007, and this defeat brought up a major leadership crisis. Election for a new leader was held on November 11, 2007. The paper examines blogs that were pros or cons the two main candidates for presidency for the period from September 16 to November 13 2007. The political event of the election of a new Presidents of PASOK was chosen because it is a debate, which lasted for two months. It is a significant political event since it not only relates to one of the major parties in Greece, but also it motivated nearly one million PASOK supporters to go to ballot on November 11. The president's election was accompanied by extended political discussion mainly on TV and the media in general. The event presented all the features of a debate.

The second event is about the dismissal from the parliamentary party group of Mr Costas Simitis. Mr Simitis, former Prime Minister of Greece, was dismissed by the newly elected President of the party George Papandreou (June 2008). Blogs commenting in this event during June 12 to June 30 2008 are also studied. The dismissal of a former Prime Minister by the newly elected President is by itself an important event and it becomes more important since it relates to the effort of George Papandreou to build a strong self-image. Unlike election for President, it was not a debate. Rather it was an already accomplished event when discussed by the media, thus it was a momentary event. Concerning bloggers reactions, this event also provoked an immediate and extended discussion.

George Papandreou was elected as the new President of PASOK on November 11 2007 with a marginal victory of 53% over his main opponent Mr Evaggelos Venizelos. In June 2008 the newly elected President of PASOK adopted a resolution concerning the critical comments and interventions of former Prime Minister Member of Parliament and member of the Parliamentary Group of PASOK, Mr Costas Simitis. Mr Papandreou dismissed Mr Simitis from the parliamentary group of PASOK through a movement that was annotated as an attempt of Mr Papandreou to appear decisive and capable of resolving critical matters of his party. Both the election of President and the dismissal of Mr Simitis from the parliamentary group were discussed and commented in length in the media and considered to be very significant. Blogs also had a share of this discussion. Both issues gathered high percentages of comments.

4 METHODOLOGY

The paper examines the degree of interconnectivity, cohesion and polarisation of Greek political blogs. It proposes a methodology to represent the impact of political polarization on blogs communication patterns. The basic hypothesis supported by the literature is that within polarized political systems blogs are forming clusters around central blogs, which are considered reliable or sharing the same affiliation. Users of the Internet who wish to be informed quickly, locate these central blogs, which serve as focal points of discussion, and for economy of navigation, they read only the posts on these blogs. Bloggers also locate these central blogs and place their posts on these blogs along with a link to their own blog. They expect thus that the readers of central blogs will also visit their own blogs. This research examines whether this hypothesis holds for Greek political blogs.

The paper uses Technorati.com, which is considered a reliable and popular blog search engine. Blogs with some authority are studied. Technorati Authority is the number of blogs linking to a website in the last six months. The higher the number, the more Technorati Authority the blog has. In the authors view, this consideration grants greater validity concerning blogs selection. Next, the paper studies incoming links between blogs through their blogrolls. The blogs connectivity patterns for each one of the cases considered, are represented by directed graphs, where blogs are presented as nodes and incoming links between blogs as arrows. Each directed graph is associated with its adjacency matrix. An adjacency matrix is a square non-symmetric binary data matrix where unity is placed in cell ij if blog i links to blog j through the blogroll, else zero is placed in the cell. The methodology draws upon social networking theory, although the original approach followed, only makes use of the adjacency matrices of social networks and no other graph theoretic properties are considered. The paper uses multivariate statistical analysis using as input the data for the adjacency matrixes.

The paper adopts a method introduced by Zafiroopoulos and Vrana (2008) for locating central blog groups in political blogging. The original idea (Drezner and Farrell, 2004) is that political blogs are organized around central focal point blogs, where most of the informative conversation is taking place. Zafiroopoulos and Vrana (2008) introduced a combination of social networking theory, Multidimensional Scaling and Hierarchical Cluster Analysis to locate such groups by studying incoming links through blogrolls. By finding such groups, one can explore how bloggers are organized.

Multidimensional Scaling (MDS) is used in the analysis as a data reduction technique and to quantify the original binary data. The method reproduces the original data and map them on a fewer dimensions space (namely two in this analysis) while the effort is to keep intact the distances among the original data on the new reproduced data. "Stress" is a measure of goodness of fit between distances of original data and distances of the reproduced data. Better fit is assumed when stress is close to zero.

Hierarchical Cluster Analysis (HCA) uses the quantified data from MDS to produce clusters of blogs with similar properties. Blogs in the same cluster are linked by nearly the same set of blogs. So in this way the blogs in a formed cluster are regarded to be of the same family – have common characteristics - by blogs who link them. Some of the clusters that are produced by HCA, gather the largest number of incoming links. If this happens then they may serve as conversational focal points. Although it is not

necessary, this property might be associated with the skewed distribution of links, also mentioned by Drezner and Farrell (2004) for political blogs: only few blogs have a very big number of incoming links while the rest, the majority of blogs, have only a small number of incoming links. This paper also presents the distribution of incoming blog links.

The study of the networks reveals how blogs are self-organized in groups around focal conversational points, and secondly how this formation changes depending on the impact of the political event that is discussed. Findings reveal whether the original hypothesis also holds for the cases we examine, and whether it presents differentiations of polarization of blogs, in the sense that debates compared to static events, may conform better to the original hypothesis concerning both the quantitative features of the networks and the content of the comments posted on blogs, as well.

By applying the above-mentioned methodology twice, for studying blog connectivity for election of PASOK president and for studying connectivity for dismissal of Mr Simitis, comparisons can be made and the impact of political events on blogs conversational patterns can be studied. Obviously, the methodology could be also applied for other political events. The paper argues that by locating central blog groups, through the above methodology, and then by measuring their quantitative properties, we can study the impact of political events on blogs, since different degree of political polarization may reflect to different patterns of blogs communication. Central blog groups could be located and then studied regarding their density and number of incoming links. Further, qualitative analysis of the blog authors' profile and the posts content could help to distinguish how political conversation and polarization is taking place in different circumstances. To demonstrate these, the paper locates central groups for both the cases studied, and next it presents the quantitative and qualitative characteristics of the central blog groups. Next section presents findings for the two case studies, as a demonstration of the proposed analysis. It starts with the construction of blogs social networks. Next, it reports on skewness of incoming links distribution and carries on with locating central blog groups. These groups are then studied according to both quantitative and qualitative characteristics to arrive to some conclusion on whether the degree that political polarization is also transferred to the blogosphere.

5 FINDINGS

5.1 Constructing blog social networks

Through Technorati.com search, the blogs that which link to the two main candidates for presidency G. Papandreou's and E. Venizelos's websites and blogs are recorded for the first case study. In this way 65 blogs with some authority were found. Links within these blogs included in the blogrolls of these specific blogs are recorded. For the second case study, all the blogs that discussed the dismissal of Mr Simitis were recorded. 54 blogs with some authority, commenting on Mr Simitis' dismissal were recorded. Links within these blogs included in the blogrolls of these specific blogs are recorded.

Figure 1 presents the interconnections of the blogs. The 69 blogs commenting on election of the president and the 54 blogs commenting on Mr Simitis' dismissal are presented in graphs. As Drezner and Farrell (2004, p.13) mention "Blogs with large numbers of incoming links offer both a means of filtering interesting blog posts from less interesting ones, and a focal point at which bloggers with interesting posts, and potential readers of these posts can coordinate. When less prominent bloggers have an interesting piece of information or point of view that is relevant to a political controversy, they will usually post this on their own blogs. However, they will also often have an incentive to contact one of the large 'focal point' blogs, to publicize their post. The latter may post on the issue with a hyperlink back to the original blog, if the story or point of view is interesting enough, so that the originator of the piece of information receives more readers. In this manner, bloggers with fewer links function as "fire alarms" for focal point blogs, providing new information and links". Also they mention that: "We note that this implies that even while focal point blogs play a crucial mediating role, smaller blogs may sometimes have very substantial political impact by bringing information to the attention of focal blogs" (Drezner and Farrell , 2004; p.13). This paper argues that "focal point" blogs are recognized as authority

blogs by the bloggers' community and they may serve as the blogs cores where the interesting and informational discussion is taking place. This property might be a consequence of the skewed distribution of links, also mentioned by Drezner and Farrell (2004).

To test whether this hypothesis holds for political blogging in Greece, this paper examines the distribution of incoming links for the two sets of networks of the study. Table 1 presents some statistics of the two networks. Since Density and Centralization index are nearly equal for the two networks, the two networks have nearly the same structure. However, skewness of incoming links distribution has different values for regarding these two networks. Skewness of incoming links distribution for Election for President is larger. In fact, a Kolmogorov-Smirnov test of fit, results to a statistically significant difference between the distributions of percentages of incoming links for the two networks ($p < 0.05$). Figure 2 also presents the histograms of incoming links, and the scatterplots of ranks of incoming links (1 being the 1st blog in order that is the blog linked the most) versus the percentage of incoming links. Most of the blogs have a very small number of incoming links, while only a few blogs have a big number of incoming links. This is true in the case of election of president but it is less obvious for Mr Simitis' dismissal. This finding provides some evidence that Drezner & Farrell's (2004) argument about the skewness of incoming links distribution holds true.

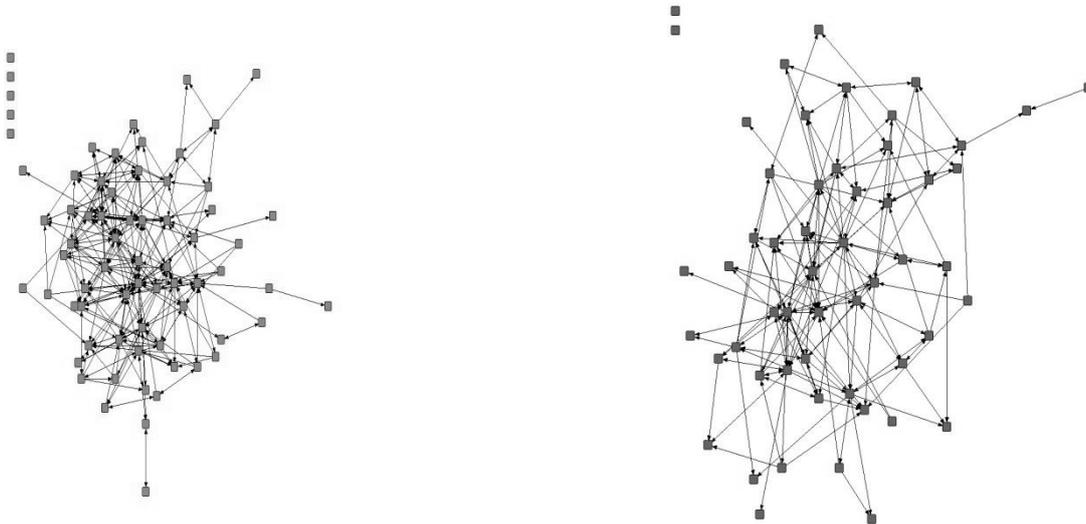


Figure 1. Social Networks of blogs commenting on: election of PASOK President (left) and dismissal of Mr Simitis (right).

	Election for President	Dismissal of Mr Simitis
Density	7%	7%
Centralization index	15,5%	14%
Skewness of incoming links distribution	0,890	0,691

Table 1. Indexes and statistics of blogs social networks.

5.2 Locating central blog groups

Next, Multidimensional Scaling (MS presents very good fit with Stress < 0.05 in both cases), followed by Hierarchical Cluster Analysis (HCA) result to the formation of six clusters in both cases. The most suitable number of clusters is decided using scree-plots of numbers of clusters vs Wilk's Lambdas.

Figure 3 presents details for the clusters for each case study. Each cluster is presented with regards to the percentage of blogs contained in it and the mean percentage of incoming links. In this way, it is easy to observe that the most linked clusters are placed at the right tail of each graph. These have the property of being small but receive the big number of incoming links. From Figure 3 it can be concluded

that in the case of election for a president, three clusters (right tail of the left graph) and in the case of Mr Simitis' dismissal, two clusters (right tail of the right graph) have the property of having only a small number of blogs and at the same time they gather the big number of incoming links. These clusters are of interest since they represent focal points of discussion.

Partisan focal points are more interesting to study. These are clusters where the majority of the blogs that constitute them are maintained by politically involved and active members of PASOK and they are not characterizing by just a journalistic style. Regarding election of President, 9 out of 65 blogs are distributed in three clusters: one cluster with four blogs are partisan pro Papandreou and the other two clusters (4 plus 1 blogs respectively) have various and mixed political characteristics. All of them are placed at the right tail of the graph. Further quantitative analysis reveals that 61% of the blogs commenting on election of President link to blogs of these focal point clusters, while 26% of the blogs link to all the blogs of at least one of these clusters.

Regarding the dismissal of Mr Simitis 3 out of 54 blogs are distributed in two clusters: one cluster have just one blog, which is partisan and pro dismissal while the other two blogs constitute the second cluster. They are mainly characterized by a journalistic and informative style. Further analysis suggests that 37% of the blogs commenting on Mr Simitis' dismissal link to blogs of these focal point clusters while 20% of the blogs link to all the blogs of at least one core cluster.

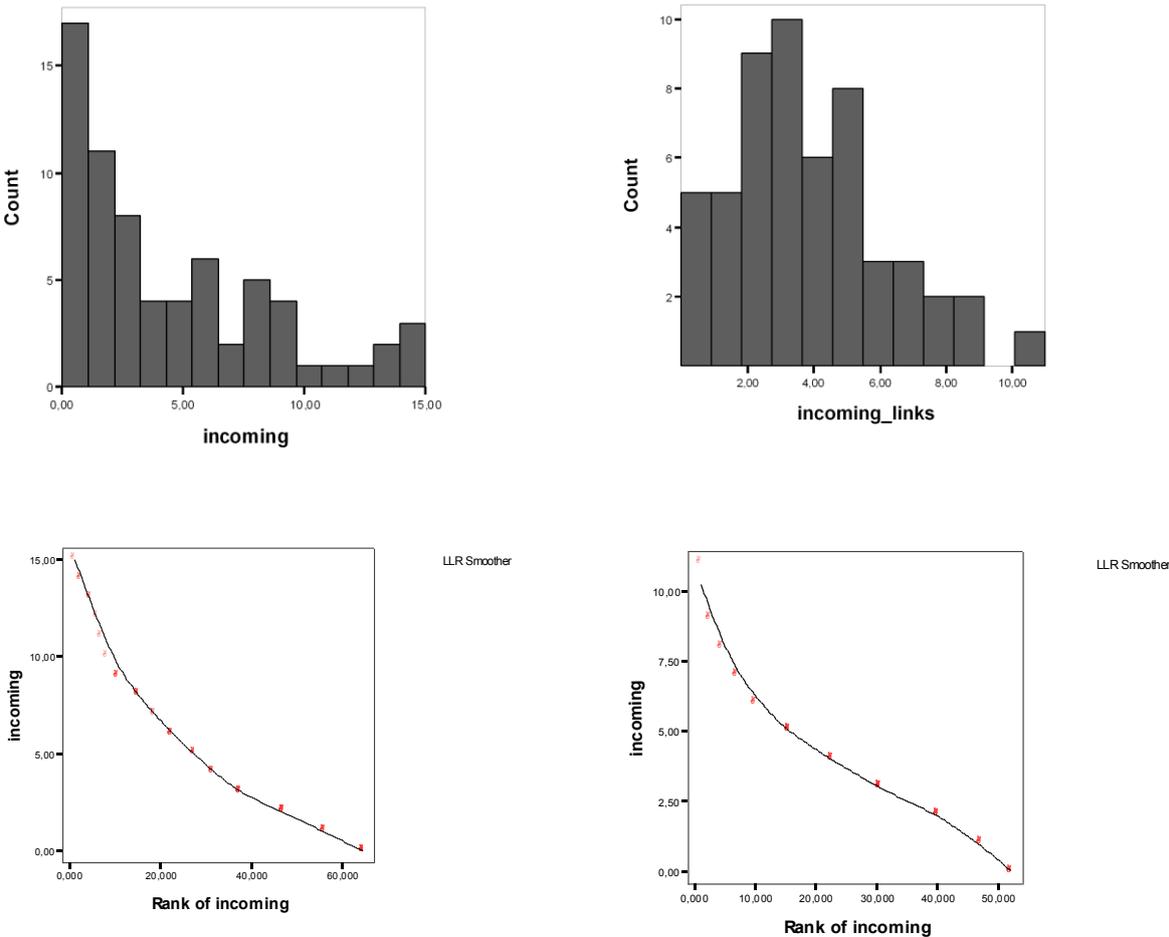


Figure 2: Histograms of incoming links and scatterplots of ranks of incoming links vs percentages of incoming links: election for President (left) and Mr Simitis' dismissal (right).

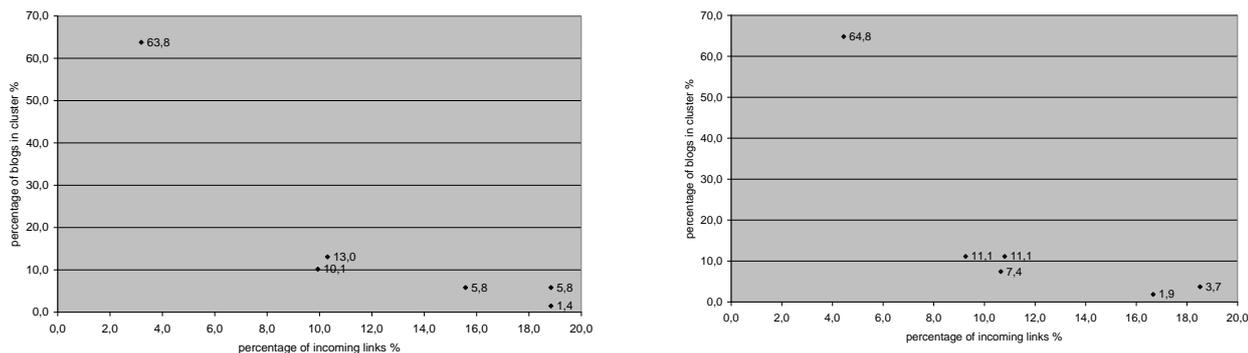


Figure 3: Representation of the clusters as a function of their size (percentage of blogs in cluster) and their popularity (percentage of incoming links compared to total number of blogs). Left election for President and right Mr Simitis' dismissal.

Concluding, it seems that Greek bloggers are indeed organized in centralized and focused networks. Their communication is organized around central blogs, which are considered popular or significant.

5.3 Analysis of central blogs characteristics

Profile analysis of the cluster blogs shows that the only partisan blogs which take part in the discussion are indeed members of only these core blog clusters, and this in turn provides evidence of the degree of polarization of the discussion. Our case studies provide evidence that polarization is more obvious for the case of election of the president of PASOK, for two reasons: 1. more partisan blogs are members of the core (or focal points) blog clusters, 2. skewness of links distribution is higher. Consequently, a small number of blogs gather even larger number of incoming links and are in turn considered as focal points. In the case of election for PASOK President, it seems that conformity with the general patterns supported by the literature for western countries is more obvious, while the case of dismissal of Mr Simitis, offers less evidence of adaptation. In this sense, polarization for the second case should be considered smaller.

Differences about blog political discussion could be summarized:

a) In the differentiated mobilization and attendance of bloggers in the discussion:

In the dismissal of Mr Simitis, only one blog still maintains participation out of the nine blogs that participated in the election of President. This blog originates from the most partisan and purely political cluster that was present at the discussion for the election of President. It appears that the special characteristics of Mr Simitis' dismissal (as an already finalized political action and though not susceptible of further influence), does not affect considerably the mobilization of other active bloggers.

b) In the recorded polarization – formation of partisan clusters of blogs:

For the case of the election of President, one partisan cluster has four partisan blogs, as opposed to the case of the dismissal of Mr Simitis where one partisan clusters has just one partisan blog.

5.4 Qualitative differentiations of the discussion regarding the two events

The previous section presented how conversational patterns differ from each other according mainly to quantitative indexes of linkage among bloggers. Further analysis reveals that there also exist qualitative differentiations regarding the presentation, discussion and commenting on the two events. These differentiations can be found through extended content analysis of the blogs' comments.

There are common characteristics regarding comments for both cases i.e. description of chronicle, attempts for interpreting the protagonists choices and actions, expression of agreement of/disapproval, the relation of the political events with the Media is a theme of discussion, the personal characteristics and the profiles of the protagonists are discussed, the general tendency is recorded in favor of one candidate G. Papandreou (Papandreou opposite Venizelos/Papandreou opposite Simitis) and finally attempts are made for forecasting the future of PASOK. However, there are some points of differentiation between comments about the two events. For the discussion with regard to Mr Simitis' dismissal, number of issues discussed and number and length of comments are smaller, comments are less aggressive, readers and commentators record less personal stories and views. Also, support in favour of the main protagonists is generally smaller; prompts to the citizens to act following a specific political plan are absent. In general, the dynamics that arise from the fact that a political event is still evolving and thus susceptible to influence, are absent.

6 CONCLUSIONS

This paper proposed a methodology to measure the impact of political events on blogs' communication patterns. The originality of this paper regards two issues. First, social networking theory was used along with to multivariate statistical analysis to search for focal point blogs. Based on the original hypothesis that political blogs are organized around central blog groups, the paper made an effort to locate them. Second, it used this idea to explore possible differentiations of this self-organization across political discussion of different political events. In this fashion, the paper locates not only frequencies of posts through blogs, but in fact, it finds which are the blogs that in a sense monopolize the discussion. Also, by locating the most partisan of these blogs, the paper offers findings about the degree of polarisation of the discussion.

Findings suggest that the proposed methodology could be used to analyze the impact that different events have on blogs communication patterns. The research provided evidence that political blogging in Greece, conforms to the characteristics described in the literature regarding political blogging in polarized political systems. Greek political blogs act within a social network of blogs, which form authority core groups where the discussion is taking place. Greek blogs, considered in this analysis, are organized according to the specific event in focused social networks. This happens especially when a public debate takes place. Findings offer some evidence that the degree of political attendance and mobilization is recorded in political discussion through blogging. Skewness of incoming links distribution and the formation of core blog groups may be used to explain the importance that some blogs have on the provision of information and discussion.

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