

# **E-GOVERNMENT PROCESS IN THE PUBLIC SECTOR AND THE BARRIERS AGAINST ITS IMPLEMENTATION: THE CASE STUDY IN GREECE**

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## **Abstract**

*The study aims to gain insight into the of e-government as it has started taking place within the public sector and access the barriers that are related to its organizational structure and consequently prevent the fully incorporation and implementation of such technological efforts.*

*In order to obtain vital and accurate information, the study adopted quantitative research methodology by using the tool of self-completion questionnaires. More precisely, this study is based on a single case study, the public administration in Greece. Moreover, the sources of data collection were relied upon primary data.*

*Furthermore, this study revealed the organizational barriers against e-government by focusing on the major impediments as the participants captured them. Non-availability of high IT-staff, age of employees and the structure of the political regime as well as the way that the central government operates affect the structure of the public sector and are considered the most important barriers that guide to difficulties as far as e-government adoption is concerned. Indeed, Greek Public sector is facing many organizational problems and should eliminate the majority of them by undertaking radical changes and effective measures.*

*Key words: E-government, Organizational Barriers, E-governance in Greece*

## **1. BACKGROUND**

Navigating in the open sea of information technology project implementations in the public administration, e-government seems to be a burgeoning phenomenon across the globe (Sarantis and Askounis, 2010) that can “transform the nature of relationships from hierarchical command-and-control to an interactive collaboration among governments, citizens, businesses, public sector employees, and other governments” (Sarantis, Charalabidis and Askounis, 2011, p.117).

The increasing need for a modern and effective state with beneficial consequences for economic growth, competitiveness and prosperity of society has been imposed by the European Union according to the implementation of the Lisbon objectives and the strategy i2010 where particular interest was given towards the development of an e-government contributing to the modernization of public administration and to the offer of services of added value to the citizens in all European

countries. Based on these strategic frameworks, e-government refers not only to the use of tools provided by the information technology and electronic communications in the public administration but also to their combination with organizational changes and new capabilities of the personnel, aiming to the amelioration of civil service, the strengthening of democracy and the effective support of broader government policies (Takas, 2011).

E-government can be considered still nascent (Grant and Chau, 2005) in terms of development and management due to the existence of impediments related to the structure of traditional public administrations which is characterized by sheer complexity as it consists of different departments that are vertically aligned and the majority of service that they deliver require complex collaboration between civil servants across departments (Silcock, 2001). Many public organisations have realised that they an institutional innovation is the most important managerial factor (Ward, Hemingway and Daniel, 2005), therefore, public organizations implement change and innovation facing difficulties because authority is concentrated at top managers, formalization blocks innovative solutions and vertical hierarchy limits cross-functional communication (Philippidou, Soderquist and Prastacos, 2004).

Greece is one of those countries that under the pressure of institutional changes introduced from the European Union launched new programs and initiatives in order to improve the quality of public administration and adapt new managerial practices to make Greek public organizations more efficient, less bureaucratic and aligned with the other Member States but the difficulties in carrying out the implementation are mainly due to an institutional inertia (Philippidou et al., 2008) which is characterized by a heavy bureaucratic environment, deeply historical nature.

So, this strong inertia in the Greek public institutions that derives from the existence of “traditional government cultures, where processes and work practices are usually based on strict hierarchies and jurisdictional boundaries that are anchored in legal-administrative traditions” (Eynon and Dutton, 2007, p. 227) can be the main obstacle that blocks and delays change initiatives through e-government, resulting in the maintenance of the status quo (Philippidou et al., 2008).

#### *Problem statement and Research Objectives*

The aim of this project is to map the landscape of barriers against the implementation of e-government projects within the public administration by extending the analysis through a case study in Greece. Specifically, this research tries to capture only those barriers that are interrelated with the organizational structure of Greek public institutions and consequently plague the e-government interoperability between them.

The research is focus on these issues and as there have been no clear and previous studies that shed light on those points, this study tries to investigate the deeper reasons why e-government projects cannot be accomplished and how it is related to the hierarchical organizational structure of the public sector.

The objectives are:

1. To review the current state of e-governance in Greece
2. To review and analyse all those structural elements of Greek public sector
3. To grasp the major barriers with focus on institutional and organizational aspects of Greek Public Administration that can emerge during the application of e-government projects
4. To analyze the key underlying organizational issues provided the foundation for examining key barriers

## 2. LITERATURE REVIEW

This section aims to provide a theoretical framework which is related with the field of e-government and tries to clarify the impediments from an organizational perspective that derive from the application of e-government initiatives and schedules in the area of public administration. It is divided into three main parts. Firstly, a description of the term e-government will be given by presenting its basic characteristics and the frameworks that have been developed in order to identify its nature.

### **E-government**

E-government is increasingly a global phenomenon undertaken by an array of diverse government administrations (Grant and Chau, 2005) and is defined as “a broad-based transformation initiative, enabled by leveraging the capabilities information and communication technology; (1) to develop and deliver high quality, seamless, and integrated public services; (2) to enable effective constituent relationship management; and (3) to support the economic and social development goals of citizens, businesses, and civil society at local, state, national, and international levels” (Grant and Chau, 2005, p.9).

E-government develops in stages which are complex and creates relationships of peculiar interest. Many conceptual frameworks over the years developed in order to clarify the evolution of e-government. Hiller and Belanger (2001) supported that e-government can be considered through two lenses, the type of relationship and the stages of integration (Hahamis, Iles and Healy, 2005) while “Layne and Lee (2001) regarded e-government as an evolutionary phenomenon and suggested a four-stage growth model: (1) cataloguing, (2) transaction, (3) vertical integration, and (4) horizontal integration (Hahamis, Iles and Healy, 2005, p. 189

E-government has enormous potential to improve and advance the interactions between the three parts as they were presented and described above, citizen, business and government. A mature and effective e-government has the capacity to build new methods and avenues for participation in government, acting as an endless wire, electronically connecting together citizens, businesses, and all hierarchical levels of government in a nation (Jaeger, 2003).

However, e-government is still demonstrated to be a detailed and complex development that is difficult to conceptualize. All the concepts around it are mostly of a descriptive and anecdotal nature. The end result is that government implementations have yet to realize the upper stages of maturity and that the understanding and knowledge of this area is still in the process of formation (Hahamis, Iles and Healy, 2005).

So, to realize adaptive, transparent, accountable, efficient and agile government that can provide demand-driven service provisioning at low cost, more radical changes should take place. In this light (Janssen and Shu, 2008), another research field that has attracted the interest of researchers currently has been developed and is shifting towards enhancing the effectiveness of service delivery through the process of organizational transformation and is called transformational government (Van Veenstra, Klievink and Janssen, 2009).

### **E-government Barriers and Research Frameworks towards its identification**

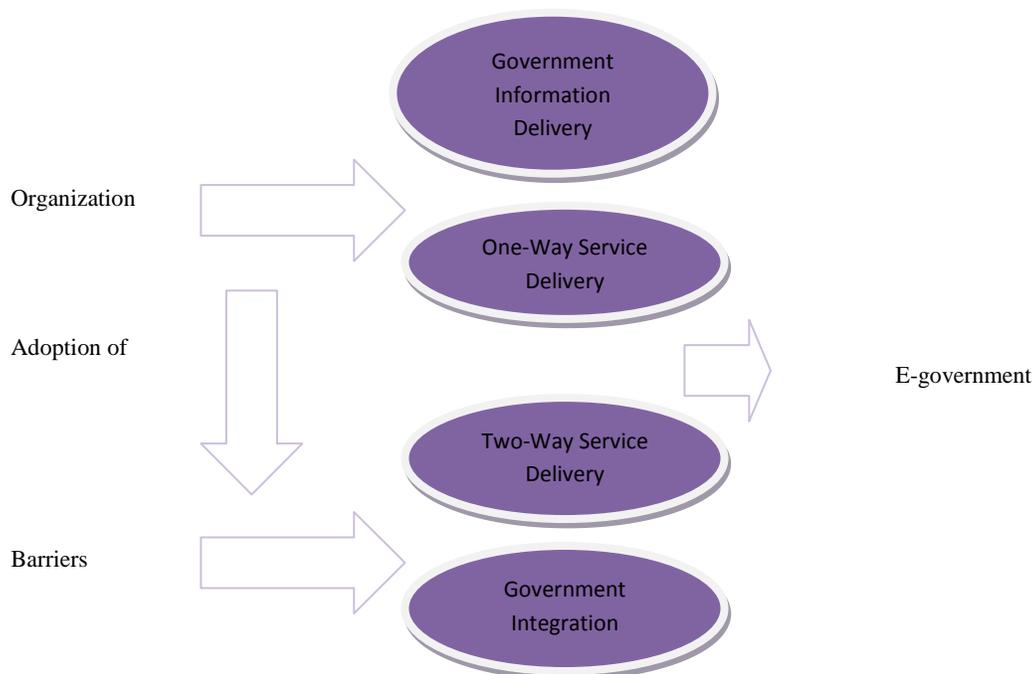
E-government barriers can be considered as “characteristics-either real or perceived- of legal, social, technological or institutional contexts which work against developing networked governments because they: (a) impede demand, by acting as a disincentive or obstacle for users to engage with e-government services; or (b) impede supply, by acting as a disincentive or obstacle for public sector organizations to provide e-government services; or (c) constrain efforts to reconfigure access to information, people and public services in ways enabled by ICTs” (Eynon and Dutton, 2007, p.230). The literature has identified numerous forms of barriers but our review will focus on those that are related to the organizational structure of the public sector and can cause organizational challenges.

E-government development is not a stand-alone process. It needs the readiness of the existing government bureaucracy to be placed in the context of e-government (Lagzian, 2007) while “t-government goes beyond the traditional organizational borders and requires a reengineering of cross-organizational business processes. This in turn requires new governance structures and shifts in organizational boundaries”(Janssen and Shu, 2008, p.118). The examination of e-government through an organizational and transformational perspective as it is embodied in the literature is not sufficient and doesn't provide a clear and integrated view on the relationship between traditional government and new government with the means of information technology. Although previous research has listed some potential barriers for governmental transformation (Henningsson and Van Veenstra, 2010) only a few studies have paid attention to analyze the details of the current government bureaucracy influence on e-government development processes (Li, 2005) but without having looked further into the nature of those barriers that derive from these processes as well as in the way that they can influence the transformation (Henningsson and Van Veenstra, 2010). “Academic and practitioners research is still struggling with coming to grips with e-government, let alone t-government” (Irani et al., 2007, p.22-7) and due to the existence of little research in the barriers that organizations encounter on their path to transformational government (Van Veenstra, Klievink and Janssen, 2009, p.1), there is a clear need to identify and clarify the major barriers that occur when organizations aim for transformation (Van Veenstra, Klievink and Janssen, 2009).

So, more “emphasis should be given on the constant value creation and value innovation of public agencies, the organizational change and the change of attitude among public employees, the retraining of public servants with new IT-oriented skills, the increased flexibility of public bodies and the multichannel provision of online public services” (Parisopoulos, Tambouris and Tarabanis, 2009, p. 468).

### **3. PROPOSED RESEARCH FRAMEWORK MODEL**

Despite the rapid implementation of e-government, there is no universal model that can be applied in all countries as each country has its own circumstances which reflect its environment and might influence e-government implementation (Al-Shehry et al., 2006). For this reason, our analysis chose to adopt a model that can provide insights into the phenomenon of e-government and a good understanding of factors and barriers that might affect the e-government system. This model is called strategic framework of e-government adoption (Figure 7) and will be focused on two specific aspects in order to serve the research purposes. More analytically, it will look at the e-government barriers and IT adoption within the public sector by considering the e-government barriers and organizational structure of public sector, as two separate constructs. The model is formed below:



This study attempts to analyze the fact that if organizational structure of public sector is related with e-government barriers and if it can create these, then the barriers can have a greater impact on e-government project adoption and implementation..

#### 4. RESEARCH DESIGN

“The formidable problem that follows the task of defining the research problem is the preparation of the design of the research project, popularly known as research design” (Kothari, 2004, p.31). Bryman and Bell (2007), presented five different types of research design such as experimental, cross-sectional, longitudinal, case study and comparative study design. All types of research design differ from each other and serve different purposes. Firstly, experimental design is considered as a touchstone because it engenders considerable confidence in the robustness and trustworthiness of causal findings. Cross-sectional design entails the collection of data related to more than one case in a single and specific time point and it tries to examine the connection of those data with two or more variables. Longitudinal design is also an extension of social survey research based on self-completion questionnaires or structured research within a cross-sectional design. In terms of reliability, replication and validity, longitudinal design has little differences with cross-sectional design. Moreover, comparative design study entails the study of more or less identical methods of two or more contrasting cases and through the method of comparisons between those cases it tries to understand the social phenomena. Finally, case study design entails the detailed and intensive analysis of a single case (Bryman and Bell, 2007). According to Yin (2004), “the strength of the case study method is its ability to examine in-depth a case within its real-life context” (p. 1). A single-case study that is well designed and structured can reveal important features about its nature (Bryman and Bell, 2007).

Despite the existence of different types of research design, case study design is the most appropriate and viable method for our research as it can give answers to our basic questions and clearly specify our null and alternative hypotheses. This can be accomplished through the use of questionnaires, an instrument of quantitative research.

## 5. CASE STUDY

This research is based on a single case study taking place in a single organization, the public sector in Greece, a country with a population of 11 million, approximately 367.122 of whom are civil servants working in public offices. Through this case study, our research tries to locate all these organizational barriers that can impede the e-government implementation and are derived from the peculiarities of the organizational structure of Greek public sector. This can be achieved through the distribution of questionnaires involving questions around the nature of public sector in relation to e-government initiatives in order to offer an evaluation and evidence around the theme. To achieve our research goal, we will be using the simple random sample, which is the basic form of probability sample. According to this, the sampling fraction  $n$  in our study is  $\frac{n}{N}$ , where  $n$  is the number of public officials who

$$N = 367.122$$

answered our questionnaire and  $N$  is the total number of public officials that are parts of the public sector (Bryman and Bell, 2007).

The choice of this particular case study is relied upon the fact that Greek public sector constitutes a strict and traditional public system from years.

The organization of the Greek public administration is ground on the Constitution. It is organized according to the principle of the decentralization. The division of the country for administrative purposes is based on geo-economic, social and transport criteria. The central government, apart from specific functions, co-ordinates and supervises the regional state institutions, whereas the latter have effective control over matters related to their respective regions, implementing domestic and European policies on economic and social development within their geographic scope of competence. Furthermore, local affairs are carried out by local authorities while central government has no autonomous presence and competencies at this level. Therefore, a structure of first and second level local authorities and regional administration has been established.

Public sector still remains both an area of production of public policy and a mechanism of its implementation. This complex relationship between public sector and public policy is based on two supplementary angles. The first one tries to locate the characteristics of public sector that can influence the capability of wielding public policy while the other one tries to focus on the general characteristics of public policies that are defining the nature of public sector. Among those characteristics of public sector which are related with the public policy, we can refer the following: centralized structure, inefficiency of processes in planning and control mechanisms, lack of coordination, watertight and stiffness, quantitative and qualitative inadequacy of staff (Spiliotopoulos and Makrydimitris, 2001). All these negative characteristics identify the general nature of public sector and subsequently, render the introduction of technological initiatives such as e-government impossible. So, the goal of this research is to discover all these barriers that are related to the organizational structure of public sector as well as to capture the real situation at the core of the public sector.

## 6. PRIMARY DATA COLLECTION

The task of data collection begins after having defined the research problem and having designated the research design. Primary data are the result of such collection and are defined as those which are collected afresh and for the first time and present an original character (Kothari, 2004). Our research used quantitative research based on self-completion questionnaires, as type of primary data collection. Questionnaires are a method of data collection quite popular, particularly in case of big enquiries. They consist of a number of questions in a definite order on a form or set of forms and they are addressed to a certain sample of participants who are responsible to reply the questionnaire by serving the goal of it (Kothari, 2004). This research

instrument has to be easy to follow and its questions have to be particularly easy to answer. So, the main components of questionnaires are fewer open or closed questions, easy-to-follow designs in order to minimize the risk that the respondents may be able to fail to filter or to omit the questions as well as short size in order to avoid the risk of respondent fatigue (Bryman and Bell, 2007).

So, the advantages of the selection of self-completion questionnaires are clear. First of all, they are of low cost even when the universe is large and widely spread geographically (Kothari, 2004). Secondly, they are easy to be sent by choosing different way such as post or distributed at the same time in large quantities (Bryman and Bell, 2007). Another important aspect concerning the questionnaire is the issues of reliability and validity. These terms seem to be synonym but they are completely different and they include different meanings in relation to the evaluation of measures of concept (Bryman and Bell, 2007). For our study, as far as reliability is concerned internal reliability as different meaning of this term can be applied and refers to the key issue that whether or not the indicators that make up the scale or index are consistent while for the term of validity, construct validity seems to be appropriate and refers to the causal relationship (Bryman and Bell, 2007) that can be developed between two measures, in our case the organizational structure of public sector and the e-government barriers. In order to measure reliability and validity and achieve confidentiality through the results, a common method used by the majority of researchers is the conduct of tests as they are incorporated into computer software for quantitative data analysis (Bryman and Bell, 2007), in our case SPSS for Windows. A well known test concerning the testing of reliability can be considered the Cronbach's Alpha while through the examination of the relationship between our variables we can measure validity and consequently deduce and confirm our initials hypotheses by using also similar statistical analysis.

### **Participants**

In order to help the processing of the research, about 100 participants belonging to different categories of stakeholders will participate in our survey. "Stakeholders are defined as groups that are involved in any stage of electronic service development and delivery" (Vassilakis et. al.2005, p.43) and they are staff of public services. They are working in different departments in public services of different nature and they are engaged both in public affairs and e-government activities. They are a representative sample as they know from inside how a public service is working and what are the major problems related to its organizational structure that can block any technological initiative.

These participants through the completion of the questionnaires, after having hand-distributed them, can indicate their personal opinion and contribute to the finding of problems as well as to the solution of problems.

## **7. DISCUSSION**

The aim of this thesis is to gain insight into the phenomenon of e-government as it has started taking place within the public sector and access the barriers that are related to its organizational structure and consequently prevent the fully incorporation and implementation of such technological efforts.

With respect to the target of this study, there are two main objectives that need to be identified:

1. What are the elements of the organizational structure of the public sector that can create obstacles to e-government?
2. How these barriers can influence and prevent e-government?

In general, the analysis showed that the employees in the public sector have good knowledge in the use of computers. Nine out of ten employees have a personal computer and at approximately a same percentage of them have an internet access but e-government still faces barriers. They are summarized and analyzed below as they were reported by the public officials.

As it is noticed, the employees feel that the non-availability of high IT staff constrains e-government (4.04). The shortage of IT skills is considered a major barrier as it confronts demanding challenges concerning government ability to provide e-government services of the next generation (Chen and Gant, 2001, Heeks, 1999, Ho, 2002 & Moon, 2002, cited in Ebrahim and Irani, 2005, p.604). Additionally, the attraction of the right IT staff and the increasing need for qualified IT personnel is absent in the public sector and such positions have high complexity and scarcity of applicants (Ebrahim and Irani, 2005). Besides, they indicate that the central government or political system highly affects the organizational structure of public sector (4.0). Politics seem to form major barriers to e-government adoption as for some organizations and departments the existence of ownership and control of business data is related with power which derives from the exercise of politics (Ebrahim and Irani, 2005). Moreover, the employees feel that the e-government system can facilitate the execution of public processes (3.94) and that the age component plays an important role in the operation of the electronic systems (3.79) while with a mean value of 3.77 the electronic service development and operation depends on the individual attitudes. All these factors can easily result to the need of organizational reform and to the maximization of the potential offered by the e-government accompanied by changes in the organizational culture, management strategy and individual attitude (Liven and Steveson, 2002, cited in Ebrahim and Irani, 2005, p.605). But most of times, these energies cannot be easily realized. The employees also have formed a neutral opinion about the organizational barriers in the public sector based on the fact that they cannot assess the importance of the scale of such new technological changes that can take place in their organization while they may perceive e-government as a threat to their power, duties and authority (Ebrahim and Irani, 2005).

The analysis mainly rejected our null hypotheses and confirmed the alternative by revealing, based on our data, that high level of strictly traditional and hierarchical public sector is being negatively associated with high level of organizational barriers. Besides, a high level of organizational barriers is being positively associated with low-level e-government adoption and implementation. Moreover, a vertical hierarchy of management in the public sector results in poor coordination across jurisdictional and administrative departments, but on the other hand employees feel that all the obstacles can be wiped out with the use and implementation of e-government.

Furthermore, a bureaucratic public sector associated with documentary mode and interpersonal relations shows resistance to any reform while lastly, a bureaucratic organization controlled by rules, mandates and commands results in administrative limitations. The existence of those negative factors makes the adoption of a mechanism such as e-government essential as it can reduce the organizational barriers stemmed from the public sector and refresh the way that public processes are exercised.

Overall, Greek Public Administration despite the fact that it made endeavours for developing the IS (Information Society) and for following closely the tone of EU reports in the formulation of an information society vision (Boucas, 2005) through certain steps such as the operational programs of "KLISTHENIS", "TAXIS", "SYXEYXIS" and "OPIS" in order to improve the quality of public services, the organizational barriers that were described above, seem to be the major menace which weakens the position of Greece in the Global Information Society direction (Boucas, 2005).

## 7.1 Summary

E-government “refers to the use of information and communication technologies, particularly the Internet, to deliver government information and services” (ANOA 2006, cited in Chatfield, 2009, p. 135). According to the United Nations (2003) “we put “e” in front of “government” to recognize that a public administration is in the process of transforming its internal and external relationships with the use of modern information and communication technology” (p.1). Fang (2002, cited in Pathak et al., 2008) argues that e- government can lead to improvement in the relationship between government and citizens, by providing cost effective services; thus e-government can be defined as “a process to make simpler and improve democratic government and business aspects of governance through an application of electronic means in the interaction between citizens-government and businesses-government and also in internal government operations” (Pathak et al., 2008, p. 67). According to some other researchers, e-government can be defined as “the use of emerging information and communication technologies to facilitate the processes of government and public administration” (Drucker, 2001, cited in Visser and Twinomurinzi, 2008, p. 1) and as “the use of information technology to support government operations, engage citizens, and provide government services” (West and Wind, 1996, cited in Visser and Twinomurinzi, 2008, p. 1).

Within this framework, there is an ongoing debate whether the adoption and implementation of e-government initiatives would make the public sector more effective, could create an added value to the citizens and therefore it could provide more citizen-centered services. For example, Flamholtz and Randle (1998, cited in Chatfield, 2009, p. 135) argue that the reform of the public services through the adoption of e-government schemes would be of high risk “because of internal stakeholder buy-in and commitment required from policy makers, management, and public servants”. On the other hand, Scholl (2005, cited in Chatfield, 2009) claims that the results of such a transformation are ambiguous, while other researchers hold a rather positive view (Bird and Oldman, 2000; O’Donnell et al. 2003, cited in Chatfield, 2009).

The adoption and implementation of e-government would be beneficial not only to the public sector and consequently to the central government, but also to the citizens. To be more precise, it can lead to the reduction in the transaction costs of citizens who deal with public services, it improves the citizens’ access to public authorities and finally it results in the increased efficiency of the public sector with regard to the cost (Eldis, 2011). In addition to that, the adoption of e-government schemes “makes information available on government operations and public services, facilitates public feedback or reaction and allows more direct participation by the ordinary citizen in decision-making”, while at the same time it “promises higher quality and better delivery of services and a greater realization of entitlements” and it “claims to offer stronger bonds between public servants and citizens based on transparency and accountability” (Ramessur, 2009, p. 14).

On the other hand, the transformation of the public sector via the adoption of e-government has not produced clear results regarding the improvement of the relations between citizens and public services, the reduction of corruption, the increase in transparency and the decrease in public spending (Eldis, 2011).

However, there are some obstacles regarding the governmental transformation through the adoption and implementation of e-government (Henningsson and Van Veenstra, 2010; Li, 2005; Ebrahim, Irani and Al Shawi, 2004; Yildiz, 2007, cited in Cordella and Iannacci, 2010; Sanchez, 2003). The so-called e-government barriers can be defined as “The real or perceived characteristics of the social, technological, legal and institutional context which hinder developing e-government, either through hampering demand by the citizens and businesses for e-government services or through obstructing supply of e-government services by the public sector”

(Salem, 2006, p. 1). These barriers that were also revealed through our research process can be classified in the following categories:

- ❖ IT infrastructure, such as “shortage of reliable networks and communication”, “lack of integration across government systems”, “high complexity in understanding the processes and systems in order to redesign and integrate them”
- ❖ IT skills, such as “lack of IT training programs in government”, “shortage of well-trained IT staff in market”, “shortage of salaries and benefits in public sector”
- ❖ Organizational, such as “lack of coordination and cooperation between departments”, “lack of effective leadership support and commitment amongst senior public officials”, “resistance to change by high-level management”, “unclear vision and management strategy”, “politics and political impact” (Ebrahim and Irani, 2005, p. 602).

Finally, Gilbert, Balestrini and Littleboy (2004), concluded that the barriers to the adoption of e-government are “experience, information quality, financial security, low stress, trust and visual appeal” (p. 297).

However, there are eight legal foundations which can either facilitate or hinder the adoption and implementation of e-government by the public sector. These foundations are the following (European Commission, 2007): a) administrative law, b) Authentication and identification, c) Intellectual Property Rights (IPR), d) Liability laws, e) Privacy and data protection rights, f) Public administration transparency g) Relationships between public administrations, citizens and other ICT actors, h) Re – use of public sector information (p.4).

## 7.2 Recommendations

- A public organization strategically should focus on the major barriers to adoption in order to encourage this relatively new approach to delivering public services (Gilbert and Balestrini, 2004).
- Operationally, each department within a government organization should ensure that it is equipped with high-skilled IT staff and personnel of ages that by possessing high qualifications and good IT knowledge can contribute to the promotion and installation of e-government services.
- Government organizations should concentrate on the need of radical reforms within their structure in order to alter their traditional and hierarchical character and be adjusted in the new technological advances.
- Government organizations should improve their organizational management resources by reducing the impact of central government and managing the information technologies in the public sector in a different way in order to revitalize business processes, improve business decision-making and gain competitive advantages (Ebrahim and Irani, 2005).

## 8. LIMITATIONS

This study adopted a single case study in order to analyze and investigate the phenomenon of e-government. However, the selection of this type presents some limitations. A crucial aspect is that the findings cannot be generalized to a wider universe (Bryman and Bell, 2007) and compared with public sectors of other countries as each country has its own traditional structure and faces different barriers. Furthermore, our research took place in the area of Greece based on the

collection of primary data and by using the language of Greek. Despite the fact that all results were translated exactly, there is still the danger that this process can result to the distortion of the data (Bryman and Bell, 2007).

## 9. DIRECTIONS FOR FURTHER RESEARCH

From the statistical analysis one can drive the following conclusions: a) the non availability of high IT staff and the age of employees affect the adoption and implementation of e-governance systems, b) the structure of the political regime and the way that the central government operates affects the structure of the public sector, c) a high level of strictly traditional and hierarchical public sector is negatively associated with high level of organizational barrier, d) high levels of organizational barriers are positively correlated with low levels of e-government adoption and implementation, e) a vertical hierarchy of management in the public sector is positively correlated with poor coordination across jurisdictional and administrative departments, f) a bureaucratic public sector associated with documentary mode and interpersonal relations shows resistance to any reform and finally f) a bureaucratic organization controlled by rules, mandates and commands results in administrative limitations.

Another major finding of this research was that the e-government system facilitates the execution of public processes. Within this framework, namely the last mentioned finding, a further research could examine the benefits of a well-organized and effective adoption and implementation of e-governance systems not only to employees and the public services themselves, but also to citizens and the social welfare.

Furthermore, this study examined the relation between the structure of the public sector and the barriers that it creates to the adoption and implementation of e-government systems, based on the opinion of a number of employees in Greek public services.

In this context, two other researches could be conducted. The first would examine this relation in the light of the separate public services, not only in the public sector, but also in the broader public sector. This research would allow indentifying the areas of the public sector in which this problem is bigger and seeing if there are public services where e- government process operate in an effective way. The conduction of this research is based on the assumption made by Norris and Moon (2005, p. 72), that the adoption of e-government from an organization relates to “local government demographic characteristics, including type and form of government, metropolitan status, and region”. The second research could examine the same hypotheses in other countries. This would allow comparing the way the structure of public sector and the adoption and implementation of e-government systems differ significantly between Greece and other countries. What is more, this comparison could result in the production of results that will facilitate the re-organization and reform of the public sector based on the model of other more developed countries regarding the operation of the public sector and the effective implementation of e-government.

Finally, another research of great interest would be the examination and the identification of the factors that influence the adoption of e-government services not on behalf of the organizational barriers and the structure of the public sector, but on behalf of the citizens. This research is based on the assumption that e-government is related to the use of ICT in order to governmental agencies provide their services to the citizens through electronic means. Apart from this, the research of Titah and Barki (2006) provided evidence that the perception, beliefs and the attitudes of the citizens significantly affect the adoption and implementation of e-government form an organization. In this context, Warkentin et al. (2002) suggest that both the perceived usefulness and the perceived easiness of use are factors that may influence the individual’s opinion of

whether it would be beneficial and useful to use or not technology in the public sector.

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