

E-Government Structure for e-Protocol, e-Application Submission and Internal Organizational and Operational Support

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Abstract: E-Government idea includes fast and improved citizen service from a quantitative and qualitative point of view, as well as the restructuring and reengineering of the providing organization and its services, through the increased usage and exploitation of the capabilities of the information and communication technologies and especially through the facilities and services of the Internet. The escalation of the e-government services begins from the easy dissemination and easy access from the citizen to the governmental information and passes through the electronic transactions between the citizen and the public organization and reaches to the electronic delivery of the requested document by the public organization to the citizen. An obvious prerequisite, in order to support the above "layers" of the e-government services is the development of an electronic infrastructure which is able to support e-protocol, e-applications / e-petitions and internal organizational function of the public organization. In addressing the above content, this manuscript presents an e-government structure which supports and provides the above described "layers" of the e-government services. This e-government structure has been developed by Net Media Lab of N.C.S.R. "Demokritos" for a Hellenic Public Organization, in order, the latter, to provide public information dissemination, accept electronic document submission and handle them via e-protocol, and support all the operations via the appropriate electronic structure which supports easy communication among the organization's departments as well as robust and user-friendly document management, storage, search, retrieval, handling and delivery.

Key-words: e-government, e-protocol, e-transactions, governmental functions, e-tools

1. Introduction

E-government originates from penetration of ICTs within the governmental domain. E-government transforms the traditional and well known shape of governmental structure, services and operations to a new figure which affects strongly the e-citizen transactions with the governmental services. More and more governments are using information and communication technologies especially Internet or web-based applications, to provide services among governmental agencies and citizens, businesses, employees and other nongovernmental organizations [1,2]. As e-learning [3,17,18,19], e-health and e-commerce [4], e-government represents the introduction of a great wave of technological innovation as well as government reinvention. E-government uses the most innovative information and communication technologies, particularly web-based

applications, to provide citizens and businesses access to governmental information and services, to improve the quality of the services and to develop and provide greater opportunities to citizens to participate in democratic institutions and processes [5,6]. This includes transactions between government and business, government and citizen, government and employee, and among different units and levels of government like justice, taxation, welfare, social security, procurement, intra-governmental services etc [7,8,9,10,11,12,20]. All these require technical policies and specifications for achieving interoperability, security and information systems coherence across the public sector [13,14,15]. The above context constitutes a basic body of knowledge for the design and development of e-government applications. On this basis, and towards a modular design of the electronic transactions, we analytically

specified, designed, and developed a generic e-government environment that is based on a highly interactive, user-case model (citizen, employee, and administrator) and a flexible-interoperable scheme of assistive communication tools.

2. Structure of the E-government Environment

The E-Government environment consists of three systems: A Portal, the e-protocol and e-applications / e-petitions systems. The last two will be described as one, since the latter may be considered as an extension of the e-protocol system.

The governmental organization consists of six departments (planning, havoc compensation, housing, protocol, finances and research). Each department has one director.

2.1 Portal's Environment Tools

The environment includes tools that offer flexibility and adaptability depending on their use. The design of these tools are based on web services, such as discussion forums, chat, message box, e-libraries, which are widespread in the public web community. These tools are distinguished in two groups: "informative" and "communication". On one hand, the "informative" tools include services related to the information of governmental functions and their presentation. On the other hand, the "communication" tools include services that allow the communication of different user groups (users belonging to a different session level). The environment enables the management of these tools according to the user groups' permission. More explicitly, the "informative" tools are the following: announcements, f.a.q. and e-libraries. Respectively, the "communication" tools are: discussion forums, message boxes, chat and e-requests. Finally, it must be noted that the environment relates the tools according to the specific user level permissions. These levels are analyzed in the sections to follow.

2.1.1 User Levels

Seven user levels are distinguished (Fig. 1) in the environment. Different supporting tools exist in each of them.

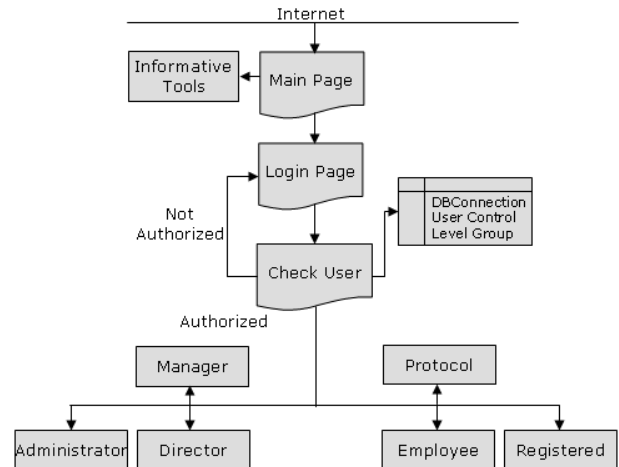


Figure 1 – User Levels

Depending on the corresponding use, these levels have also a different role: administrator, manager, director, employee, protocol (employee), registered user, civilian / guest. Each of them interacts with the other through the "informative" and "communication" tools related to each level.

2.1.1.1 Administrator

The administrator coordinates and manages the e-government application via the administration tools. The administrator determines which user level-group has the permission to use the corresponding "informative" and "communication" tools. Moreover, the administrator can communicate with the rest user levels in order to solve issues and has the privilege of updating the system. Finally, the administrator decides about the preparation, design and diffusion of the electronic content to the citizens. Through user friendly and interactive ICT web tools, the administrator authors the governmental content.

2.1.1.2 Manager-Director-Employees

These three user levels are described together, as they incorporate many similarities. The Manager decides about the preparation, design and diffusion of the electronic content. Moreover, through the communication tools, the employees cooperate with the directors, the directors with the Manager and the Manager with the Administrator with respect to problems solution and ideas exchange for the better functionality of the system.

Finally, these three user levels play an important and diverse role in the e-protocol chain, as will be described later.

2.1.1.3 Protocol Administrator

The Protocol Administrator is responsible for the e-protocol system. Besides the “Informative” and “Communication” Tools, has the ability to view, change (under conditions) and add applications / petitions to the e-protocol system (Fig. 2).

The applications / petitions are fully categorized and new categories can be created.

2.1.1.3 Registered / Authorized User

The authorized users have the ability to see and change specific info regarding their account, can view the progress of their applications / petitions and finally can make new applications / petitions, that are supported by the e-application / e-petition system.

2.1.1.4 Unauthorized User / Guest

Guests can enter and search the data structure as a means of gathering important information. Finally, he/she may be informed about the news and events via the news and calendar service.

3. User Tools and Services

3.1 Administration Tools

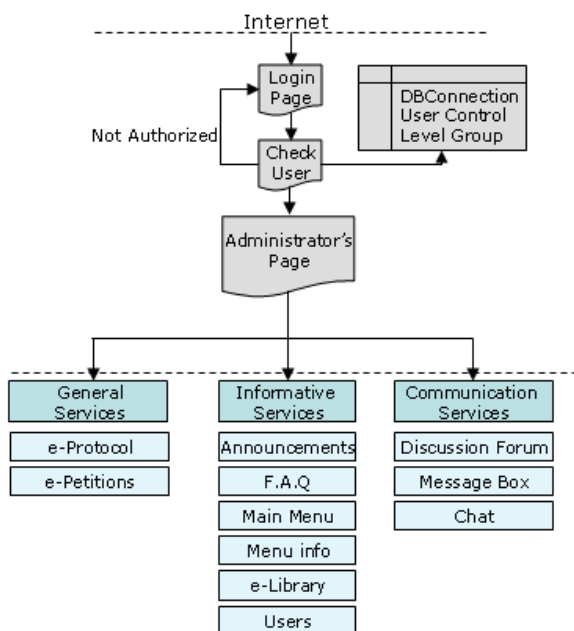


Figure 2 - Administration Tools

The environment provides administration tools that are separated in two groups as follows: management

of the portal system and management of the e-protocol and e-applications / e-petitions system.

Management of the Portal system incorporates management of the “informative” services and management of the “communication” services (Fig. 2). Management of the informative services is an important group, as through it the administrator has the flexibility to manage the following ontologies: users, main menu description, e-library, announcements and frequently asked questions (F.A.Q.). The environment tools enable the administrator to organize the informative content. Correspondingly, the communication services group is consisted of interactive forms via which the administrator manages: chat, discussion forum and message box.

Management of the e-protocol and e-applications / e-petitions system incorporates management of the petitions, their categories and deadlines.

The transactions executed in each group concern retrieval, insert and update of the corresponding data. All web requests/responses are carried out through interactive and user-friendly forms.

3.2 Tools of the Manager-Director-Employees Environment

The environment tools (Fig. 3) of these user levels are analyzed in three groups: Communication, Informative and General Services.

The group of communication services is the one that enables these three levels to communicate with the other user levels. The tools that employ these tasks are: discussion forum, message box, and chat.

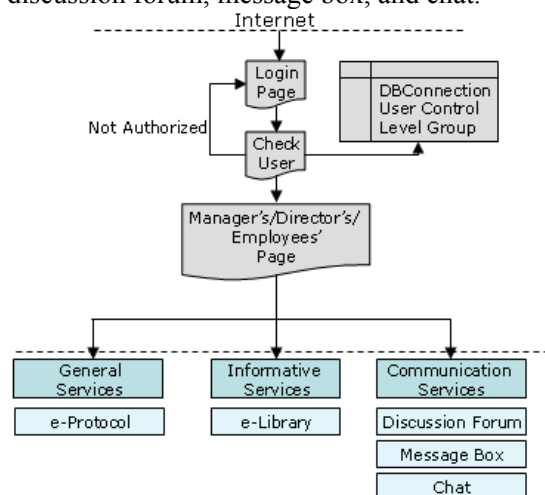


Figure 3 - Tools of the Manager / Director / Employees Environment

The second group of the informative services is consisted of tools that enable the fast access and management of the electronic content. This content cannot be accessed by unauthorized users.

The general services group includes tools that are different for each user level and play essential role in the e-protocol chain.

3.3 Tools of the Protocol Employee Environment

The environment tools of this user level are similar to the ones mentioned in 3.2. In addition, this level has extended tools regarding the e-protocol system. The protocol employee has more privileges in the e-protocol system and also can interact with the e-petitions system. This level is the starting and ending point in the e-protocol chain.

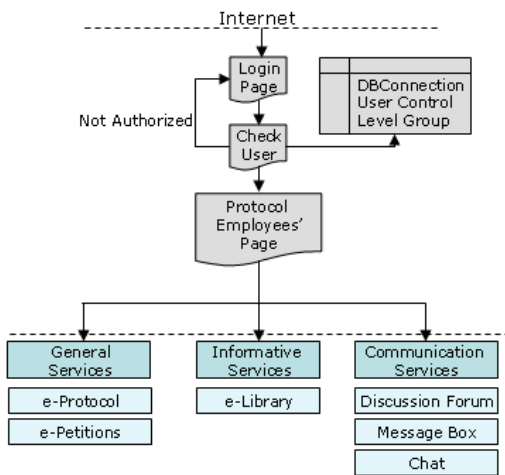


Figure 4 – Tools of the Protocol Administrator Environment

3.4 Tools of the Registered – Authorized User’s Environment

The Registered User has the privilege to interact with the e-Petitions system. He / She can submit an application to the agency, as long as it is supported by the system. Moreover has the ability to track the status of the applications he / she had submitted in the past. Finally, he / she can view and change some of his account information.

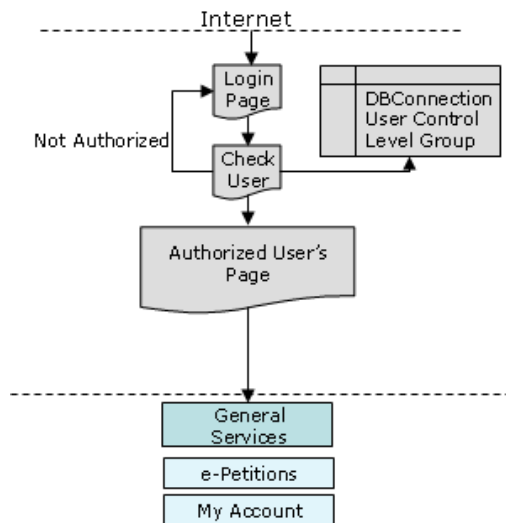


Figure 4 – Tools of the Registered User’s Environment

3.5 Tools of the Guest - Unauthorized User’s Environment

The Guest, on the other side, can browse the Portal in order to obtain valuable information regarding the agency and / or the issue(s) he / she wishes to apply for. In order to apply, the guest has to create an account (register) and interact with the e-Petitions system.

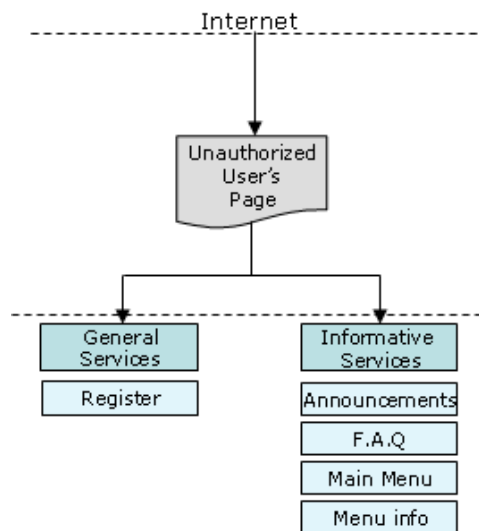


Figure 4 – Tools of the Guest Environment

4. Structure Presentation

4.1 General Description

The presented environment is used as the web Portal of the Earthquake victims' Compensation Agency [16]. The application serves electronic collaboration of the agency's employees as well as the general information of citizens for the e-services. The basic contribution is the application of the communication services (forum, chat, message box) as a means of central-based communication of the agency with its employees and with the citizens. The main objective of the developed infrastructure is the diffusion of information from the agency to everyone and the improvement of the e-services to the citizens. The portal's contribution with respect to information and valorization is the diffusion of the agency's information and services to the simple internet user.

4.2 The Core of the e-Protocol System

The e-Protocol system accepts petitions from various sources, depicted in Fig. 6.

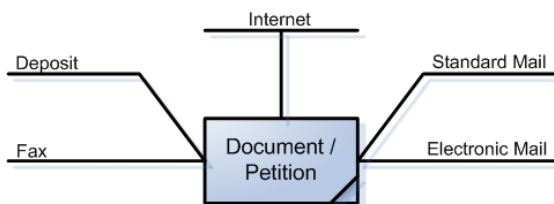


Figure 6 – Sources of the e-Protocol System

Once a new petition has entered into the system, the procedure shown in Fig.7 is applied.

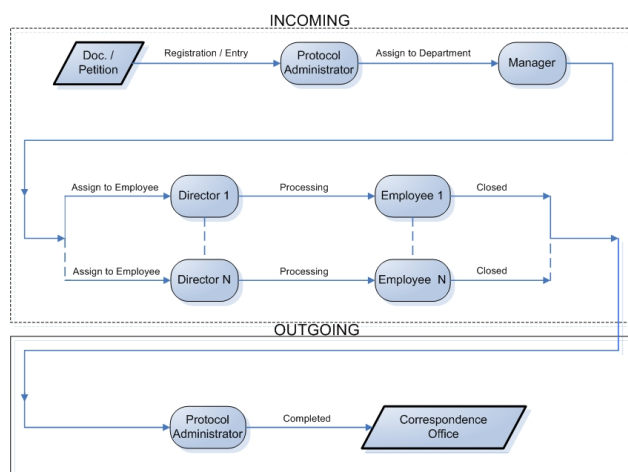


Figure 7 – e-Protocol Chain

All steps are automated and the system has been designed so as to minimize the need of human intervention.

4.3 Security

The transactions are made under secure communications (SSL). Moreover, there is an idle timeout of 20 minutes. If there is no activity for this period, the system automatically logs out the user.

5. Conclusions

In this paper, we presented an e-government environment based on ICT tools. Our contribution is based on the proposal of a generic electronic scheme that enables distant collaboration of the agency's employees and the e-citizen. The included tools serve communicational and informative governmental functions through a user-friendly, interoperable and distributed web-based architecture. Summing up, we must note that two basic axes are served. The first is the communication of the employees and the e-citizen, 24 hours per day, and the e-content development for different user levels. The second axe includes the delivery of e-services to the citizen.

6. References

- [1]. Kostas Metaxiotis, John Psarras, E-government: new concept, big challenge, success stories, *Electronic Government, an International Journal*, Vol.1, No.2, pp.141-151, 2004
- [2]. Zhiyuan Fang, E-Government in Digital Era: Concept, Practice, and Development, *International Journal of The Computer, The Internet and Management*, Vol.10, No.2, 2002, pp. 1-22
- [3]. A.S.Drigas, J.Vrettaros, D.Kouremenos, L. Stavrou, E-learning Environment for Deaf people in the E-Commerce and New Technologies Sector, *WSEAS Transactions on Information Science and Applications*, Vol.1, Issue 5, November 2004, p. 1189
- [4]. A.S.Drigas, L.Koukianakis, A Modular environment for e-learning and e-psychology applications, *4th WSEAS International Conference on APPLIED INFORMATICS and COMMUNICATIONS*, December 17-19, Puerto De La Cruz, Tenerife, Canary Islands, 2004

- [5]. Xenakis. A., Macintosh. A, G2G collaboration to support the deployment of e-voting in the UK: a discussion paper, *Third International Conference in E-Government, EGOV 2004*, Zaragoza, Spain; 30th August to 3rd September, 2004
- [6]. Macintosh, A., Robson, E., Smith, E., Whyte, A, Electronic Democracy and Young People, *Social Science Computer Review*, Vol. 21 No.1, 2003, pp. 43-54
- [7]. Eileen P. Kelly, William J., E-government and the judicial system: online access to case information, *Electronic Government, an International Journal 2004*, Vol. 1, No.2 pp. 166-178
- [8]. Stuart J. Barnes, Richard Vidgen, Interactive e-government services: modelling user perceptions with eQual, *Electronic Government, an International Journal 2004*, Vol. 1, No.2, pp. 213-228
- [9]. Paul Henman, E-government and the Electronic Transformation of Modes of Rule: The Case of Partnerships, *Journal of Systemics, Cybernetics and Informatics*, 2004, Vol. 2, No. 2
- [10]. Sandeep Verma, Electronic government procurement: a legal perspective on the Indian situation, *Electronic Government, an International Journal 2004*, Vol.1, No.3, pp. 328-334
- [11]. Rosemary H. Wild, Kenneth A. Griggs, A web portal/decision support system architecture for collaborative intra-governmental planning, *Electronic Government, an International Journal 2004*, Vol.1, No.1, pp. 61-76
- [12]. Penjira (Mony) Kanthawongs, An Analysis of the Information Needs For E-Parliament Systems, *WSEAS Transactions on Information Science and Applications*, Vol.1, Issue 5, November 2004, p. 1237
- [13]. John Borrás, International Technical Standards for e-Government, *Electronic journal of e-government* Vol.2, Issue 2, September 2004, pp. 75-80
- [14]. Ye-Sho Chen, P. Pete Chong, Bin Zhang, Cyber security management and e-government, *Electronic Government, an International Journal 2004*, Vol.1, No.3, pp. 316-327
- [15]. Habtamu Abie, Bent Foyn, Jon Bing, Bernd Blobel, Peter Pharow, Jaime Delgado, Stamatis Karnouskos, Olli Pitkanen, Dimitrios Tzovaras, The need for a digital rights management framework for the next generation of e-government services, *Electronic Government, an International Journal 2004*, Vol.1, No.1, pp.8-28
- [16]. Earthquake victims' Compensation Agency, <http://yas.ncsr.gr>
- [17]. A. S. Drigas, J. Vrettaros, D. Kouremenos, An e-Learning Management System for the Deaf people, *WSEAS Transactions on Advances in Engineering Education, January 2005*, Issue 1, Volume 2, p. 20
- [18]. A. S. Drigas, E-course support and delivery for e-psychology, *WSEAS Transactions on Advances in Engineering Education, January 2005*, Issue 1, Volume 2, p.25
- [19]. A. S. Drigas, G. Stavridis, L. Koukianakis, A Modular Environment for e-Learning and e-Psychology Applications, *WSEAS Transactions on Computers, December 2004*, Issue 6, Volume 3, p.2062
- [20]. A. S. Drigas, L. Koukianakis, E-Government Application for Supporting a Network of Distributed Public Administration Units, *WSEAS Transactions on Computers, December 2004*, Issue 6, Volume 3, p. 3336