

# E-government Application for Supporting a Network of Distributed Public Administration Units

A.S.DRIGAS, L.KOUKIANAKIS  
Applied Technologies Department  
NCSR "DEMOKRITOS"  
Ag. Paraskevi  
GREECE

dr@imm.demokritos.gr, kouk@imm.demokritos.gr  
<http://imm.demokritos.gr>

*Abstract:* - The primary aim of the e-government applications is the fast citizen service and the accomplishment of governmental functions. This fact, combined with the increasing familiarization of the citizens with the new technologies, has led to a generic transition of the governmental models from the traditional to the electronic administration. In addressing the above context, this manuscript presents an e-government application for supporting a network of distributed Public Administration Units (PAU). The environment supports the basic e-government models, namely, G2A (Government to Administration) and G2C (Government to Citizen). These models are described along with the e-tools that they are consisted of.

*Key-words:* e-government, G2A, G2C, e-transactions, governmental functions, e-tools

## 1. Introduction

The waves of e-government are rising through public organizations and public administration across the world. 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], 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]. 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 E-government Environment

### 2.1 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: network of Governmental Units, list of Public Administration Units (PAU), government web links, governmental functions, news, calendar 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 to the PAU according to the specific user level permissions. These levels are analyzed in the sections to follow.

## 2.2 User Levels

Three user levels are distinguished (Fig. 1) in the environment. Different supporting tools exist in each of them. Depending on the corresponding use, these levels have also a different role: administrator, administrator of Public Administration Unit (PAU) and unauthorized user. Each of them interacts with the other through the “informative” and “communication” tools related to each level.

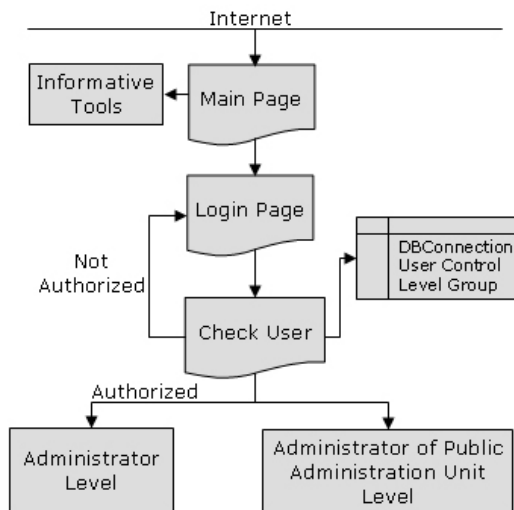


Figure 1 – User Levels

### 2.2.1 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 administrator of Public Administration Unit in

order to be kept informed about the progress of the Public Administration Unit.

### 2.2.2 Administrator of a Public Administration Unit

The Administrator of a Public Administration Unit decides about the preparation, design and diffusion of the electronic content of the respective PAU to the citizens. Through user friendly and interactive ICT web tools, the PAU administration authors the PAU governmental content and determines the user navigation templates. Finally, through the communication tools, the PAU administrator cooperates with the general administrator with respect to problems solution and ideas exchange for the better functionality of the system.

### 2.2.3 Unauthorized user

In this level, the environment guest may easily acquire information for the PAUs in all provinces (Fig. 2).

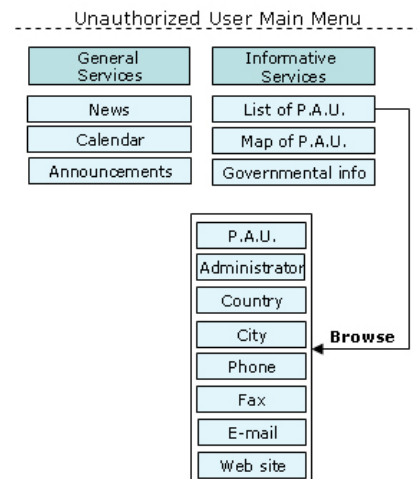


Figure 2 - Unauthorized User Main Menu

The guest can enter and search the PAU data structure as a means of gathering important information for the retrieved PAU (e.g. province, state, phone numbers, e-mails, e-maps). Finally, he/she may be informed about the news and events of the correspondent PAU via the news and calendar service.

## 3. User Tools and Services

### 3.1 Administration Tools

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

of “statistics” services, management of “informative” services and management of “communication” services (Fig. 3).

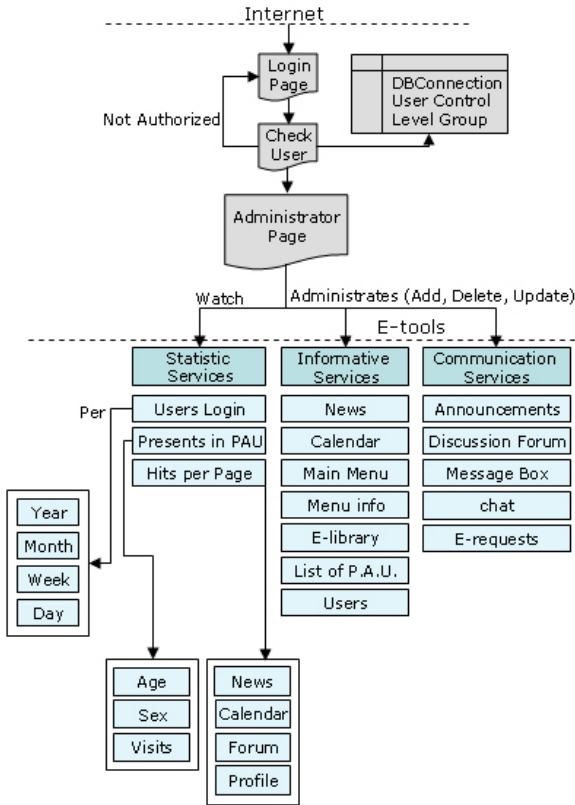


Figure 3 - Administration Tools

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 CGI forms. More explicitly, the statistical services include information about the hits of the administrators, of the PAUs per year, month, week and day, the citizens presence at the local PAUs per sex, age and visits quantity, the hits per service of the environment e.g. news, events, discussion forums, profile. Moreover, the management of the informative services is an important group, as through it the administrator has the flexibility to manage the following ontologies: users, news, events, PAUs, main menu description and e-library. Correspondingly, the communication services group is consisted of interactive forms via which the administrator manages: calendar, chat, discussion forum, e-requests and message box.

### 3.2 Administration tools for PAU management

The environment tools (Fig. 4) enable the administrator of the PAU to organize the informative content aiming at the diffusion of the PAU activities to the citizen and the internet user. Moreover, these tools are used by the administrator in order to conceive the citizens’ requests and manage the PAU content templates. These tools are separated into three groups, as follows: statistical tools of the hits environment, PAU presence per sex, age, visits quantity, online users.

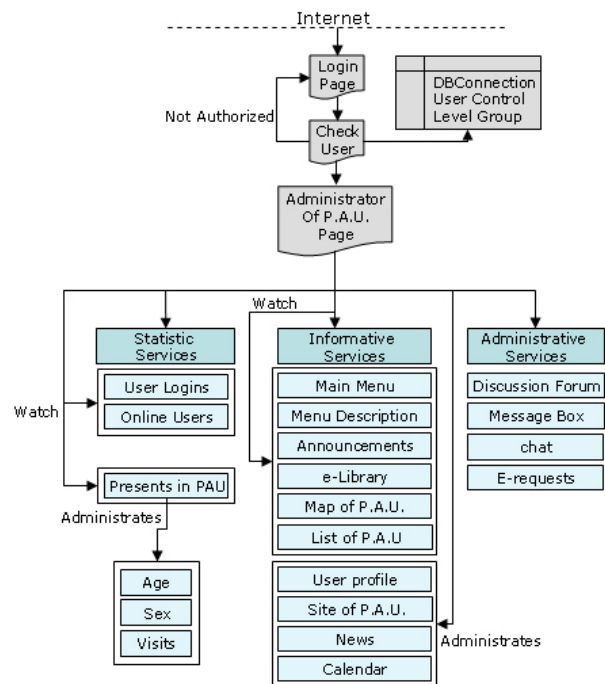


Figure 4 - Administration Tools of PAU

The second group of the informative services is consisted of tools that enable the fast access and management of the electronic content, such as: main menu, menu description, news, calendar, announcements, e-library, map of PAU, list of PAU, user profile, and PAU site, news and calendar management. The third group of communication services is the one that enables the PAU administrator to communicate with the system administrator. The tools that employ these tasks are: discussion forum, message box, chat and finally the requests of the PAU administrators to the system administrators. The innovation of the current level is the PAU authoring tool that is used for the construction of the PAUs personal web sites.

## 4. Pilot Project

### 4.1 General Description

The presented environment is used as the web Portal of the Greek General Secretariat for Youth People (GGSYP) [16] for the Youth Information Centers (YIC). The application serves electronic collaboration of the YIC network as well as the general information of mainly young people for the YIC services and activities. The basic contribution in the application of the communication services (forum, chat, message box, e-requests) as a means of central-based communication of the GGSYP with the YICs. The main objective of the developed infrastructure is the diffusion of information from everyone to everyone and the improvement of the YIC services to the local youth communities functionality. The portal's contribution with respect to information and valorization is the diffusion of the YICs activities to the simple internet user.

### 4.2. Administrative Actions and Procedures within the E-government Environment

The environment's levels and tools employ activities that satisfy the demands of governmental models such as Government to Citizen and Government to Administrator. Concerning the G2C model the environment supports the following:

- Information from government to citizen
- Information about the PAUs activities
- Information about crucial citizen matters
- Service provision from the PAUs to the citizen.
- Services for special social teams
- Services in work rehabilitation
- Access in educational infrastructures and portals
- Information about the access into the governmental infrastructures
- Citizen to public partners communication

Correspondingly, for the G2A model, the following services are supported:

- Videoconference
- Discussion about operational issues
- Coordination of the PAUs activities
- Information about the PAUs activities
- Monitoring of the efficiency of PAUs
- Statistical measurements of the PAUs activities

- Information from Government to PAUs
- Intranet services e.g. electronic management of files, file storage, mailing list, etc
- Collaboration between the public units for problem elimination
- Discussion with respect to reorganizing and diffusion of new ideas
- Reconciliation between the units for the continuous information
- Active participation to governmental circle

The environment offers governmental services related with:

- Improved correspondence to the citizens requests
- Reduction of the correspondence cost and time
- Improved citizen satisfaction
- Support of new and improved co operations among various governmental groups
- Automation of governmental functions
- Improvement of the governmental services, functions and operations with heavy impact on the government's image
- Access into more reliable and usable information

## 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 public central unit with the distributed PAUs 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 government units, 24 hours per day, and the e-content development for different user levels. The second axe includes the assurance of the transparency and maintenance into decision support activities.

## 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]. General Secretariat For Youth People, <http://www.neagenia.gr>