An Intranet and Internet based Information System for Administration and Information purposes[*]

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Abstract

This work presents a system developed within a project funded by the Greek Government. The system deals with the distribution of information and the exchange of documents within, from and towards (region, municipalities, citizens, various groups etc.) the prefecture of Corfu. It is exploiting Intranet and Extranet technologies in order to enable asynchronous and synchronous cooperation, manipulation of information from heterogeneous sources, security and easy administration, providing in parallel advanced communication facilities.

1. Introduction

The Citizen-Administration relationship is often hindered by various factors. The difficulty of access, the distance, the delays that cost time and money, the scholasticism and the complexity of the processes that define the operation of the Administration, are some of the problems arising when a citizen interacts with the authorities. These problems demand drastic interventions, able to contribute to a new type of relationship between the citizen and the Administration.

In this context, the distribution of information to the citizen in an immediate, time and cost effective way is particularly important. Some of the problems faced by the citizens in relation to the local authorities are outlined as follows:

1. The geographic dispersion of the governmental offices confuses and tires the citizen. Moreover, the citizen has to cope with the complexity of the structure and operation of the administration mechanism, an issue that must be taken into consideration.

2. The local authority inability to provide valid and on-time information and the lack of its efficient classification impede its retrieval.

3. The high degree of person-to-person contact and interaction between the citizen and the public servants, even for straightforward affairs, is a very important problem.

The Prefecture of Corfu in cooperation with the Computer Technology Institute, in order to tackle with this important problem has designed and now is implementing an Information System based on Intranet technologies, in order to support the computerization of its internal operations, to facilitate the communication with the Municipalities of the Region as well as to provide a quick and effective communication mechanism with the citizens.

Some of the expected results of the whole project work are:

- The efficient distribution and management of information and documents from the Prefecture to the municipalities and vice versa.

- The minimization of the number of citizens' visits to the administration centers by decentralizing / increasing the accessibility to the information. This will result in reducing the workload of the employees, and the potential users will be able to reach the information needed whenever they wish, without delay.

- The presentation of complex information in a user-friendly way.

- The provision of services of equal sufficiency and quality to all categories of citizens.

2. Description of the project

The main concept of this work is the design and implementation of an Intranet and Internet based Information System for Administration and Information purposes. The system deals with the distribution of information and the exchange of documents within, from and towards (region municipalities, citizens, various groups etc.) the Prefecture, as depicted in figure 1.
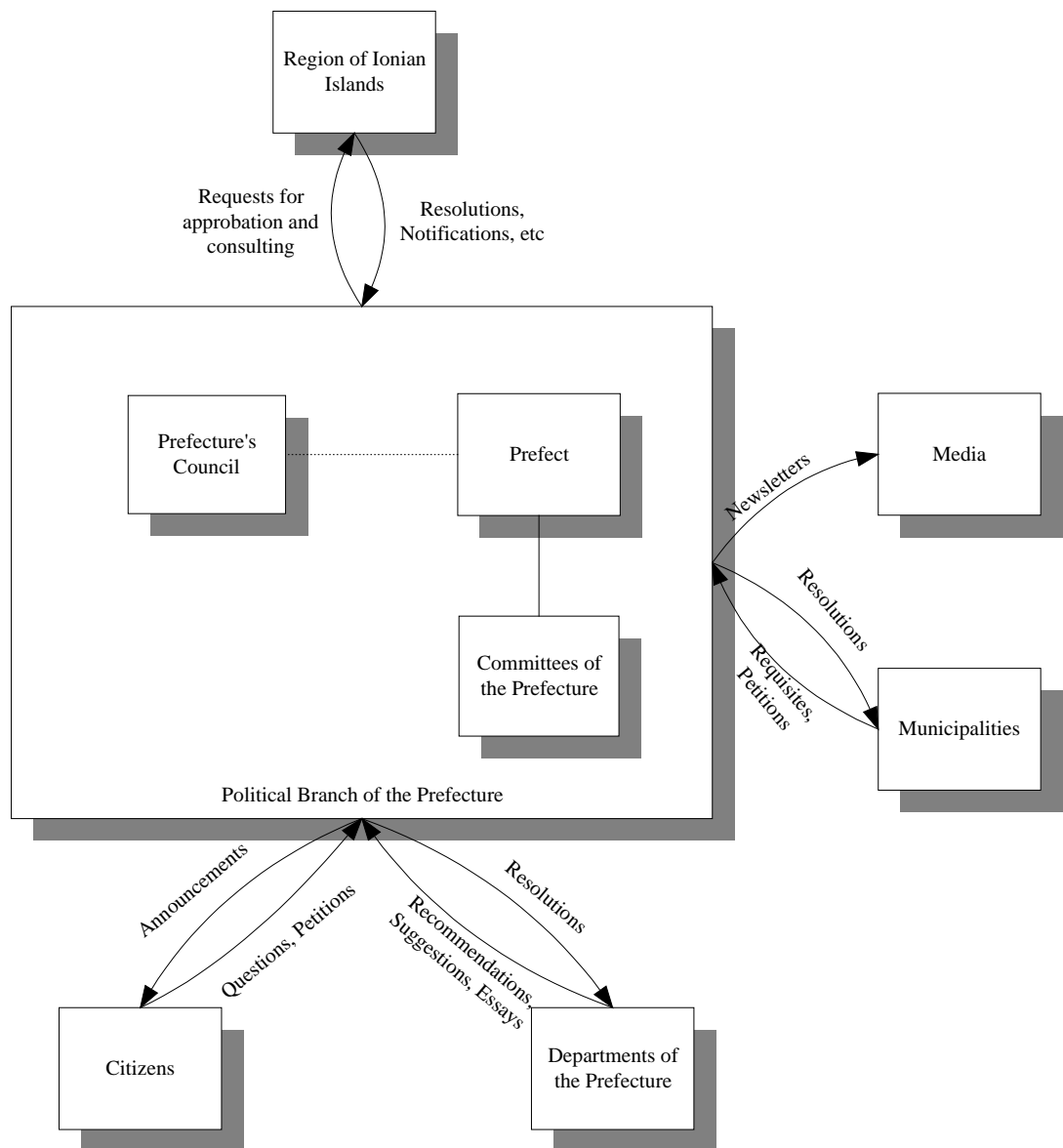

Figure 1: Data flow between the Prefecture and other Institutions.

The system is based on a WWW-oriented framework. Web Servers are being developed in the municipalities of Corfu and in the Prefecture. The prefecture's Web server will provide the central communication point within the system.

The Prefecture and the Municipalities constitute an Extranet, a private data network that makes use of the public telecommunication infrastructure. Privacy is maintained through the use of a tunnelling protocol and security procedures.

Some of the key features of the system are:

- The design of the system which follows the strong movement towards three-tier, client/server architectures.

- Data components residing safely behind corporate firewalls.

- User account management, according to the structure of the Prefecture's departments.

- Access control on all user access on all user functions, integrated with the authentication provided by the WWW server

- Internationalization.

- Strict security procedures.

- A DBMS that resides behind the Web Server and provides efficient manipulation of the information.

- A user friendly interface.

- Access via standard, unmodified web-browsers.

- Easy and effortless management of the system.

3. The System Architecture

Our architectural and design decisions concerning the structure, the functionality and the development of the system were mainly dictated by the analysis of the user needs. The analysis showed that in order to satisfy the demands and needs of the potential users, the following functional requirements must be taken into account.

- All employees of the Prefecture will have access to the Internet.

- Every department will have at least one e-mail address.

- The users will be able to participate in newsgroups. Newsgroups will be "closed", accessed only by the employees or "open", accessed by the citizens, as well.

- Public information will be provided to the citizens through the WWW.

- The citizen will be able to submit application forms, complains, and remarks through the WWW.

- The employees will be able to publish documents through the Intranet.

- The employees will have access (submitting questions, queries) through Web Front Ends to Databases that are maintained by the various departments.

- Employees will be able to use shared workspaces for document manipulation within a closed group.

- The possibility of information retrieval (announces, proceedings) based on alphanumeric keys.

- Annotation of documents.

- Employees will be able to communicate with each other through videoconference tools (NetMeeting), on-line chat and bulletin board (discussion forum).

Additionally, there are some non-functional requirements that should be met in order to ensure the quality of the system, which fall in the following categories.

Performance

- 24 hours availability of the system.

- When the system data change, the updated data will be immediately available to the users.

Safety

- If a sub-system fails it must not affect the other sub-systems.

- The system must be able to recover from a system failure within 10 min.

- No information is to be lost if the system fails.

- System availability is ensured during degraded mode operation.

Security

- All databases must be able to validate the authority for any changes that are made and for the access rights (read, write etc.) of the users.

- The consistency of the data must be ensured.

- There will be constant validation of the user rights during the viewing and updating of the system contents (web pages, files, shared workspaces)

- The database administrators can only modify the databases of the system with data provided by authorized persons (only).

- The option for encryption of the data transferred must be provided.

- Detailed records and logs must be kept so those potential problems can be traced back.

Maintenance

- Small changes of enhancement, extension or adaptation can be performed without necessitating redevelopment of the system and without the need for an interruption in its operation.

- A strict backup procedure must be followed.

- The whole system architecture must be open in terms of smooth integration with new products or new services.

Environment

- The inexperienced user must be able to use the system within a short time period.

- The system administrators will be able to fully operate the system after a day's training.

4. Introduction of the system to the users

One of the most critical stages of the whole project is the introduction of the services to the users. International experience has shown that the gradual and easy introduction of the system to the users as well as its interactivity and functionality are some of the major factors

that will determine its acceptance. Based on the above the project team is going to consume a great deal of efforts towards the following directions:

- There will be on-line help available, as well as a special team that will support the users in case of any technical or non-technical problems.

- Integration of the whole set of services under a uniform platform using a friendly and easy to use user interface to support the interaction with the users

- A series of seminars will be held for the introduction of the services to users

- There will be constant improvement and enrichment of the system's functionalities according to feedback from the users and thorough tests.

The final purpose is to develop an interactionally rich system to support efficient and effective user functionalities, taking advantage of the new WWW multimedia infrastructures currently available based on a friendly and easy to use user interface.

5. Conclusions and Future work

The project is of significant importance since it is one of the first attempts to introduce Internet/Intranet technology to Greek Public Administration and especially to Local Authorities. The project will be used as a pilot for the development and deployment of similar systems in Greek Authorities. Considerable interest in the results of the project has been shown by the Greek Ministry of Interior due to its relevance to the project "IOANNIS KAPODISTRIAS" concerning the merging of the local authorities in Greece

Owing to the environment in which the system will be used, security issues need to be taken into consideration. Not only must the system be robust against malicious attempts that compromise system integrity but also it must be able to authenticate the author of a document exchanged. A user will have the choice to encrypt and digitally sign any data before sending them so as to be assured that the data will not be altered or read during transmission. Only the recipient will be able to decrypt the data and verify their origin. Furthermore, issues regarding the legality of a formal document sent electronically (e.g. via e-mail) need to be explored.

6. References

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