Villages, towns and cities: an e-government case study

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Summary

Traditionally, the interaction between government agencies and citizens or companies was made in governmental buildings, where a public employee attended all the requests. This scenario is gradually changing and evolving because of the rapid growth of use of new communication technologies. Thanks to this, the government-citizens interaction has been moving to considerably closer to the citizen, and sometimes it takes place on his home or working place via his personal computer and the internet.

This paper explains another initiative of the Portuguese government in shorting the distance between the government and the citizens: allowing a fast access to information on parliamentary initiatives that concern the creating, changing or extinguishing villages, towns, cities or districts. The fast access medium is of course, the internet.

Introduction

The project "Povoações, vilas e cidades" is a governmental initiative to create a faster way for the citizens to consult parliamentary initiatives that concern villages, towns, cities or districts.

The final goal of this project is to provide a maintenance tool, as well as an initiative searching tool, i.e. a single place where the staff of the Documentation Services of the Portuguese Parliament can insert, update and correct initiatives and where a citizen can search for parliamentary initiatives referring, for instance, its town.

Currently, this kind of information must be requested to the Documentation Services, which represents a considerable waist of time and more importantly, staff, since it is necessary that an employee of the Documentation Services searches the requested information among hundreds of documents, then the document must be scanned and printed (which is a waist of paper and of course, tax money), or e-mailed to the person who requested it. Taking into consideration that the Documentation Services receive

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about 50 requests each month, then the need for this project becomes obvious, since it saves resources (to the Documentation Services) and time (to the citizens).

The main problem at hands is the following:

"Develop a web site that enables the citizen to access information concerning parliamentary initiatives on places (villages, towns or cities), or districts, that occurred in anytime, since the beginning of documenting such initiatives."

Together with the specification of the problem, the Documentation Services delivered several listings with the initiatives that fit into this project referring to the Portuguese 3rd Republic (about 2500 parliamentary initiatives on this scope).

Resolution of problems of this particular application

All the initiatives, no matter from which date, must be inserted in the same data model. The problem with this specification is that since the beginning of documenting of these initiatives until today, there have been several changes to the information of each initiative, especially after a change in the governmental regime.

As an example, the organ in which the initiatives where published as law projects, as well as the organ where the laws where published has changed over the years. Besides, the association of parliamentary groups with an initiative has not always been clear.

Despite these problems, it was necessary to identify which elements were common to every initiative, independently of the publication date – these elements will be the stone base of the data model.

The following concepts can be classified as stone bases of the data model:
- **Initiative** – abstract term that designates a given intention that one wants to see realized. It can be thought as the name or title of the intention.
- **Law Project** – Specific proposal over a given initiative and that is intended to be approved.
- **Law** – The approved Law Project.
- **Initiative Publication** (or Law Project Publication) – Medium by which a given Law Project is made public.
- **Law Publication** – Medium by which a given Law is made public.

Is by using these concepts that an information model will be designed, the most concise as possible but still compatible with over 100 years of initiatives.

After the design of the model, a new step must be taken: insert the data from the delivered documents to the system.

As mentioned before, documentation was about 1000 initiatives, 1600 law projects and 450 laws. Given the documentation extent and the real possibility of typographical errors, the option was the developing of an external tool that process these specific lists (after some more manual editions). This tool has become rather useful in detecting errors in the documentation, as well as data repetitions, or even severe data incoherencies. It has also allowed all the maintenance tests to be made using real information, because in the end the information could be easily replaced by the original.

The documentation delivered consisted of several Word files with tables, and in each line was the information about a Law Project. In order to use the newly developed tool, the Word files were copied into Excel, and after a slight adjustment of the columns, the newly developed tool could be used to extract the information from the file and into the data model.

System modelling

This system has three different views: information modelling, normal use and administration.

After identifying the base stones of the system, all it was needed to be done was to design an information model accordingly with the base stones. Figure 1 represents the entity association model of the system.

As illustrated, one Initiative can have several Law Projects. Each Law Project, on its turn, can have several parliamentary groups associated (the ones that took the initiative into the Republic Assembly) and several subscribers (the first people to embrace the Law Project). Each parliamentary group is associated to a Legislature, as well as each Law Project.
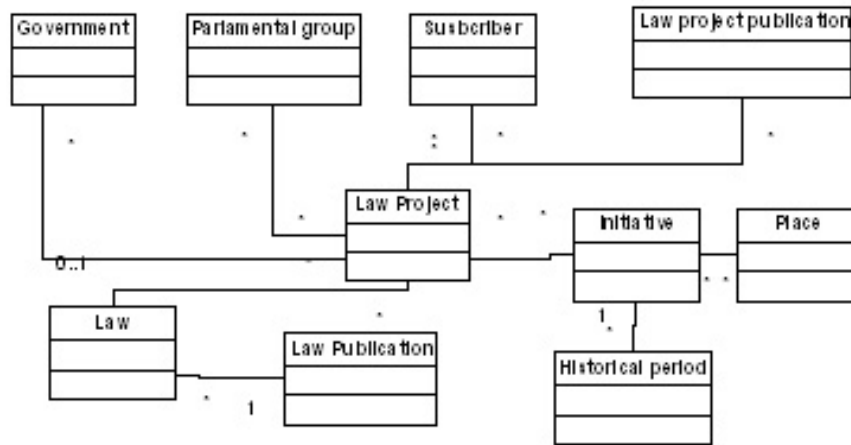
Figure 1 - Entity Association model, representing the most relevant information within the model.

A Law Project is published in the official Law Project Publication, which has a specific name depending of the current Historical Period. To a Law Project can also be associated one Law and its corresponding Law Publication. Each Initiative can still concern one or more locations (villages, towns, cities or districts) and has a specific type given by the Initiative Type. The same Law can approve several Initiatives.

As an information repository, the option was to use a relational database, given its easiness of configuration and use, and also by its levels of performance in information retrieval.

This system can be thought of as a set of two packages: normal use package and maintenance/administration package.

The normal user can perform free text search over an initiative, town related initiatives search or simply view the information on a given Law or Law Project.

The administrator is able to perform the same actions as a normal user plus changing, inserting and deleting Law Projects, Towns, Laws, Parliamentary Groups or Subscribers.

System Implementation

The rapid development of an information system is commonly affected by the developing tools and technologies used. There are some limitations that must be taken into consideration when choosing a technology, especially when the client of the information system already has some software licenses. In these cases, the technological

options should (and most of the times must) be restrained to the ones the client already has. In this particular case, the Documentation Services of the Portuguese Parliament already have a SQLServer installed as well as a Windows Internet Information Server (IIS). Therefore, and to store the information the option was to use a database stored in the SQLServer; for hosting the site was used the Windows IIS. The site itself will be developed using Microsoft .Net, and it will be designed to work on a single aspx page, using C# as code-behind programming language.

In order to create a strong data model, the use of simple index restrictions and foreign key restrictions was not enough; it was necessary something stronger, internal inter-table mechanisms to guarantee the coherence of data should be implemented. Therefore, it became necessary to specify database triggers to guarantee for instance, that all of the 3rd Republic Law Projects needed a foreign key regarding the Legislature in which it took place (prior to the 3rd Republic this condition is not yet very clear).

Another feature of the SQLServer used was the programming of stored procedures to diminish the execution time of the sql instructions and to guarantee that the data format is the expected, and that the decision of what to be returned is of the database administrator and not of the site programmer. In this project, this would not be a very serious problem, but these are some of the good practice rules useful to multi-disciplinary projects that should (or should it be must?) be present at all times in projects development.

This project was not meant to be hosted alone; the Documentation Services of the Portuguese Parliament have been developing several projects with the purpose of making information and contents on several interest areas available. Having several projects at hand, a natural thing to do is create a web portal that hosts all of the projects and gives to all of them the same "look and feel". The project "Povoações, vilas e cidades" also had to be integrated into the portal, with the same look and feel.

Finally, check tests were made to prove that the usability was as specified, and that the whole system works as planned. The system will be placed online in the site of the historical archive of the Portuguese Parliament.

Security

Having in mind that the site's administration is made online, security measures where developed based on the use of administration logins whose passwords are stored in a database has an hash key generated using the original password and a *"salt"*, a cryptographically strong random number, which makes very hard the discovery of the original password. Users are authenticated by regenerating the hash key, and comparing it to the value on the database.

Another measure that will be taken is to only allow authenticated users from within the site's intranet. Over the internet, all users will be considered as normal users.

Results and conclusions

This project is a good example of e-government, since it brings the governmental initiatives closer to the citizens. As a whole, it is a rather ambitious project, since its final goal is to allow citizens to search for any initiative on this scope.

The proposed objectives where accomplished, and some more features where developed. The site's administrators can make online what usually must be made in a back office of the site, and the standard users have a GUI easy to use and self explanatory.

One of the greatest challenges on this project was the design of the data model, which had to be compliant with every single initiative, no matter its date. The designed data model supports all of the initiatives and can even be expanded to support other types of initiatives, increasing the project's scope.

There is still no statistical data of the site's use, since it is still not online.

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