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# Administrative Information Web-based Centre (AIC)

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## Abstract

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Administrative procedures are the heart of the activity in each Town Council. Citizens do transactions every day and, sometimes, they do not understand what they must do or the steps to follow. We are developing a Web-based system to help citizens with this task in an easy way. The application is integrated a four year project called Albacete[Digital] that began in 2002 with the purpose of building an e-government system in Albacete, a city with over 150.000 citizens. *This Administrative Information Centre* is the result of the Administration study in the first year of the project and it will continue with the on-line transaction in the following years.

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# I . Introduction

Information technologies have changed governmental methods at all levels: national, regional and local. As a result, the responsible administrative bodies have been forced to improve information systems quickly to meet the expectations of citizens and business.

Terms like e-administration and e-government are emerging topics impacting on different research areas ranging from software engineering to political science. New paradigms are emerging at all levels: people and governments are now talking about e-democracy, e-voting systems and new ways to understand the local government and administration. This is all being driven by the emergence of the Knowledge Society. This paper offers the software engineering point of view of e-administration, and outlines a project to reorganize administrative processes, public contents, traditional and new services all delivered in a distributed, Internet based, environment.

Our research group, Laboratory of User Interaction and Software Engineering (LoUISE) at the University of Castilla-La Mancha, coordinates a project known "Albacete[Digital]" which began in 2002. We have had direct contact with the local administration since this year and we have been able to study the main deficiencies in

the electronic administration. We have studied licenses, taxes, organization, citizen services, etc. and in this year we are going to develop a system that permit a Town Council nearer to the citizen than never. It is a repository for digital information, contents and services to become a more citizen and business oriented Town Council.

In section 2 we describe the main ideas of the Albacete[Digital] project and some difficulties identified at the start. In section 3 we explain a particular part of the project, the most related with the system presented in this paper and in section 4 we describe the *Administrative Information Centre*. Finally, in section 5 conclusions and future work are presented.

## II . Albacete[Digital]

The capabilities of the information technologies make it possible for governments to collect and integrate huge amounts of data and administrative information. If they are able to efficiently manage this information, they could vastly increase their capacity to undertake an effective program evaluation and policy development [4]. Therefore, the solution is to elaborate and manage an e-government project in our city.

Albacete Town Council's main goal is to implement e-government and eadministration progressively in accordance

with national and European recommendations [1] [2] [3] [5].

We have defined seven main action lines in making policy more citizen oriented:

- *Knowledge Society infrastructures*: the goal is to improve the communication and information infrastructures from personal computer to broadband communications network in the city. Emerging technologies like Wireless, xDSL, Cable, PDA and WAP are very important. In this phase we are establishing a solid authentication system based in PKI environments needed to make transactions with the administration.
- *Electronic Administration*: administrative processes and services reengineering. This part of the project is explained in detail in section 3.
- *Citizen participation*: making closeness administration, actions promoting citizen participation in municipal government.
- *Municipal Management transparency*: actions oriented to generate confidence.
- *Citizen proximity*: governments should develop actions that directly influence day to day citizen life (e-Education, e-Health, e-Business, Employment...).
- *Accessibility* for all social groups, CIT (communication and information technologies) formation and e-government. It is very important to monitor and reduce the digital gap

introduced by the situation that arises between people who have access to new technologies and people who do not have the basic foundation in this area.

- *Useful information and geographic location of services* (digital organisation of Albacete services and contents), coordinating alphanumeric information with geographic information, giving people directions how to get somewhere, where they can find a service, which public transports they can get and so on.

Due to the importance of all actions and the meaning of all the package actions, the project has added an interface to other organisations, local and social groups, companies and other public sectors to participate via a form that they have to fill in. A coordination committee then approves this application. This form specifies the way in which every organisation will contribute to the project.

The project wants to get people participation in administrative life of the municipality using the Web (*citizens participation*). Digital cities are not only a compound of technology and computers. The project conceives a digital city as a mix of technology and knowledge embedded in the normal life of citizens and people that interacts each other, work together, enjoy, etc. Good infrastructures, basic digital education and the practice to use digital systems every day. So we provide a number

of tasks oriented to promote people participation in the new society with special content areas for well defined groups of people (infants, children, young people, old people...). We have developed a special site for participation where main groups and social sectors and associations are present to exchange proposals (the participation forum web site).

Besides, the idea is to extend the use of the Internet in educative centres and elearning (*citizens proximity*). The Albacete Town Council should have an educative space in Internet where children and young people will be able to learn about the town, about their representatives, about their history in a playful way. Games, quizzes, short stories etc will be offered and the ability to interact with the Major of the city, using e-mail and chat. Tasks are oriented to build a CMS for educational administrative contents.

Accessibility for all social groups, CIT (communication and information technologies) formation and e-government. It has been said that there is a very big problem between people that have access to technology and people that have not. As a result governing bodies have to be able to undertake measures to make this gap small, and if possible, irradiate it.

And finally we try to offer *useful information and geographic location of services* (digital diary of Albacete services). Geographical Information Systems (GIS)

help people to understand information better. We have a better idea of where a museum is by visualising it on a map than by reading textual written indications. Maps show us how to get to one point and illustrate certain features of a city (poor zones, main economical areas, new urban regions etc.). We realised that one form of information is not enough so it is important to think about information and how this information is delivered to citizens of different social classes and education. In a public administrative web site we have to identify where every service is, how to get there, what public transport people can use, and associated timeframe to reach a location, which people are attending citizens and their schedule. Based on observing hundreds of public and administrative web sites, we have noted that this information is not always studied and correctly delivered to these people. We will introduce an administrative CMS including new features such as metadata and semantic information.

### III. Administrative processes

After the first year of the project we centred part of the efforts in the *electronic administration*: e-government is focused on developing electronic administration and

the main goal is to improve electronic services inside Albacete town Council. We have identified six main projects in order to carry out this action line:

*The management and redefinition of Albacete Web site* ([www.albacete.com](http://www.albacete.com)): With this task we planned the integration of old web pages with modern services. This task includes an initial web accessibility study, comparing and applying W3C WAI-A recommendations [7]. One of the principal goals planned in 2003 to increase the interest of people in the Albacete local Web site, raising the dynamism of the content by providing a daily news section and offers interesting information for a great amount of citizens (cultural, policy, new services, public events, research etc.). Then, we changed in this year the home page according to accessibility criterions, information organization and design.

*Technical study of the e-administration Albacete Town Council*: In this task a detailed study of the e-administration is being performed. We will establish a well defined set of indicators that give us information about citizen and civil servant satisfaction, web access statistics, contents and services that are in high demand (and not in demand), a number of administrative processes that have been made in one year... and some what-if scenarios to make predictions about future changes (what-if we increase water tax by 0.1%, what are the effects on the local budget). Comparing this

data every year, refining the information set and evaluating the whole project we are establishing the way to measure the impact of it, and the way Albacete Town Council is improving quality of e-government processes taking different points of views.

*Corporative data model*: In this task the corporative data model analysis and design is performed. The model designed will have to incorporate the needs from both internal needs (in different administrative areas) and the service to citizens as well as management from an information technology perspective. It is necessary to introduce a common data model and a metadata model to keep information about administrative data. We want to improve information time searches and the quality of information returned by the system.

*Internet authentication and security*: to study the different models and Internet authentication and security projects. Internet transactions are an important service which saves time and money for citizens when making their usual administrative processes (licenses, taxes, reservations...). One of the needs of any public electronic system is trust in citizen and business related data. In Spain it is not yet typical for people to undertake business and financial operations via the Internet. While it is technically possible in the city of Albacete this is still a difficult barrier that needs to be overcome. For this, there is another important package of actions

oriented to digital alphabetization of people that, in many situations, are far away for this topic. But the situation is changing and some people prefer to make a significant part of the administration for their subjects via the Web, rather than the traditional way of dealing with it personally.

*AIC (Administrative Information Centre):* In this task an administrative information zone will be created to offer all kinds of information related to administrative procedures: activities, deadlines, laws and normative, administration silence effect, technical teams involved etc. This will result in the construction of a repository of administrative processes and all kinds of information and associated metadata. This repository is one of the subsystems of the administrative part (AIC + IATC) and will store information and data necessary for workflow and on line administrative transactions. This on-line system will be explained in section 4.

*IATC (Information and Administrative Transaction Centre):* Following this task a number of on-line administrative services will be offered (administrative processes, payment transactions, services reservation etc.). This subsystem is based on a workflow that is the nucleus of the system. Through these services it is possible to consult the step and situation that our process is at in one moment. The Centre provides transactional services based in a PKI system, and in the near future it is

supposed to be connected with the national IATC (Public Administration Ministry, MAP) using agreements between national and local governments (national projects PISTA, DIGITAL CITIES, Internet for all etc.).

Both the AIC and IATC systems compound a modern CRM (Citizen Resources Management) administrative system. It is based on a set of commercial ERP (Enterprise Resources Management) applications which the Town Council has or will have soon.

## IV. Administrative Information Centre (AIC)

Main activity in a town council is related to administrative procedures. When citizens have to do some administrative tasks, they do not usually know what is for what thing and even what to do in some cases. An on-line system such as Administrative Information Centre (AIC) can help citizens to solve their administrative tasks. Citizens should know how to do some transactions in their town councils and town councils have to facilitate this kind of information. The question is: why is not this information facilitated through the Internet?

The problem to solve is the barrier between people and bureaucracy, that is, the unknown steps that they must follow in

order to do the transactions needed in all administrative procedures. It is facilitated to citizens by this system and Administration can diffuse to them how to do transactions in an easy, fast and economic way.

These are the objectives in AIC and what the system try to do a light way. In the following subsections the methodology, the architecture of the system, an example with a particular administrative procedure, and other implementation details will be presented.

#### 4.1. Methodology

First of all, we had to study the domain problem. This includes, not only interviews to people in the Town Council who are in direct contact with citizens and know the real troubles, but also the analysis of the official documentation from the Ministry, internal and technical informs from the Town Council, laws related and other information.

Public Administration Ministry of Spain (MAP) [9] has defined part of this solution, how it should be. In fact, all the state administrative procedures are accessible in the MAP portal Web [11].

Once we analyzed all this information, laws, and official documentation, we started to study some administrative procedures in particular. The first one was *minor work license solicitude* and it will be detailed in

subsection 4.3.

After the study of some administrative procedures in several administrative units and the information from the MAP [10] [12] that we mentioned before, we got to create some templates to get the information about administrative procedures. Templates have some internal and external data about procedures. Internal data are some information for the system and external data are the information that can be shown to the citizen by the system.

Examples of internal data are the internal name of the procedure, the key of the administrative unit which is the responsible of this procedure, the key of others administrative units which participates in the transaction, data about the interest of the procedure, the date that show when the procedure was created, some key words, etc. Examples of external data are the name of the procedure, its objective, a summary about this, the name of the section which is responsible, the way you can use to start it, how long it takes, who are the petitioners and addressees, what sections are involved in the transaction, requirements and indispensable documents, law related, and the all steps followed by procedures in the transaction, etc.

Then, a complete data model, which is the base of the Web-based system, was created, using modelling tools to design the principle of the future data base. Finally, we started the development of the system. A

development based in all this points studied before.

## 4.2. Architecture

AIC is a three part system. The part all the people can see and navigate. It is like an extranet. The part in which only the administrators of the administrative units can enter to do modifications, create or delete procedures. It is the Intranet. And a big repository which contains all the information about procedures, administrative units... It is the central part of the system.

If you are a citizen, you will be able to access to the information about administrative procedures through the Web portal of the Town Council in the Internet. Then, the way in which you can start this procedure is now accessible.

Specially you can be informed about data like the name of the procedure, its objective, a summary about this, the section which is responsible, the way you can use to start it, how long it takes, some key words, who are the petitioners and addressees, what sections are involved in transaction, requirements and indispensable documents, law related, and the all steps followed by procedures in the transaction just almost the same that was taken in the templates mentioned in subsection 4.1. The external data are shown to the citizens through this part of the system.

With this system all the people can see a complete list of the administrative procedures, or a list with all the procedures from an administrative unit, or a list with related procedures, etc. But if you do not know which is the procedure you need to start because of what you need, then you can introduce some words in the system in order to do a search. The system matches these words with some data of the procedures like key words, objectives and title, and then only procedures related are shown. People do not need to know the particular procedure, only what they want to do and the AIC will say what the procedures are and how to do it.

On the other hand, administrative procedures are introduced section by section (administrative units). In other words, each procedure belongs to an administrative unit which is responsible for some procedures. Then, there is a person who has the administrator roll in each section in the Town Council, and he can add, modify or delete procedures of this particular section. In this way, the repository is always actualized with the last changes in the procedures and citizens can access quickly to the real and last information.

All this information together generates the repository, which is the base of the Administrative Information Centre and which comes close the administration to the citizen.

Besides, there is a tool for internal

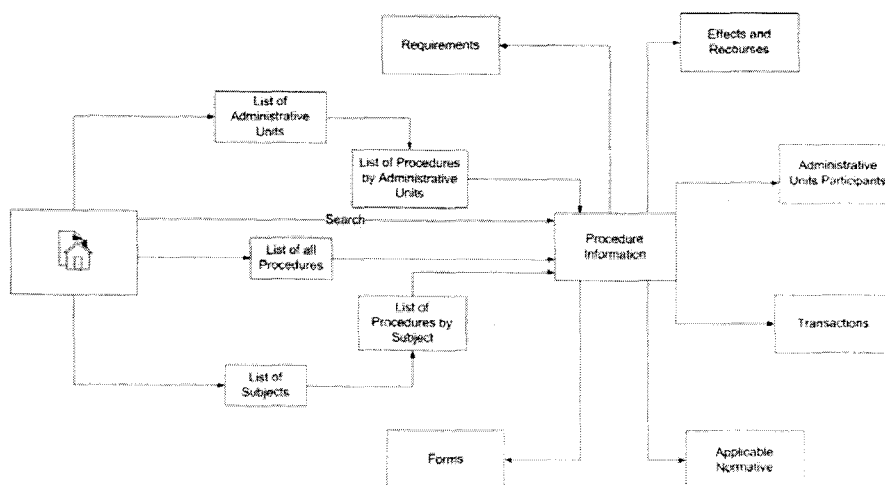


communication. Administrative procedures go from one unit to other and other, then, it is very important to facilitate the communication between administrative unit administrators. It basically consists of an internal forum and a formulary which is send to a particular administrator from another through e-mail. In this way, they are always in communication about particular doubts in procedures that are running.

be completed. If you were lucky, you do not need to queue. You go home and complete all the information, get some documentation needed and go to the Town Council again. If you were lucky, you do not forget any documentation and you do not need to do all this again. So the transaction stars but you do not know almost anything.

In other way, if you use AIC you do not need to go to the Town Council at the beginning. You can access to the system

Fig. 1. Here is an example about a diagram of the system. Concretely, it is a Web diagram which represents a citizen vision of the system.



#### 4.3. An example

If you need to do some modification in your house, or in other building, and it does not modify the general structure, then you have to get a minor work license solicitude from your Town Council. You go to the Town Council, ask to the receptionist, talk to an informer, he give you a solicitude to

and search for the procedure you need. Then you are informed about all you need, times, steps, laws, recourses, and even you can download the minor work license solicitude and other documents in order to fill in and to take them with the rest of the papers. You also know the documentation that has to be attached. This is the moment when you go to the Town Council with all

you need. Citizens are well informed about steps, data, etc. in every moment. Either town council workers or citizens save time and can do a most efficient work.

#### 4.4. Implementation Details

The system is being developed in this moment, then the only information that we can facilitate is the technology that is being used.

Data models and some software engineering software diagrams are made with MS Visio and they represent the whole and the system parts just in a glance.

The repository of all the information has been created in a MS SQL Server.

The intranet and the extranet of the system are being developed with .NET technology, with ASP.NET.

## V. Conclusions and Future Work

This project is contributing to information technologies deployment and to the implementation of new technologies in Albacete (Spain). The project has been detailed in several action lines: infrastructure of Knowledge society; administrative processes and services reengineering; citizen participation; municipal management transparency;

citizen proximity; accessibility for all social groups; CIT (communication and information technologies) formation and e-government; and, finally, useful information and geographic location of services (digital diary of Albacete services).

Concretely, the development of a tool such as the Administrative Information Centre does more legitimate the sentence "doing nearer the administration to the citizen". There is a long path to do so that citizens may use the Internet like the on-line Administration but this is one step more in this race.

AIC facilitates the access, the knowledge, and the availability to the information products making from public data. Moreover, a higher number of people can access in the best conditions of time and cost, contributing in the growth of the electronic computer science industry.

The next phase of the project is oriented to establish a PKI system with authentication methods that allow citizen to make on-line transactions. If the first stage of the AIC task (requirements, analysis, data and information capture and database proposal) has been made this year, the next stage will accomplish the implementation of the repository and the upload of all this information. Other goals include the creation of a new area inside the web site with access to this information, and the presentation of the service to citizens. The project will focus on the IATC, a step more

in the AIC which will allow the on-line transaction in some procedures.

The project needs to consolidate the methodology proposed with the construction and proof phases for the CRM system, integrating this phases with the first one,

refining the processes and elaborating a solid methodology for administrative workflow reengineering including all the activities, checkpoints, workflow tests and quality of processes.

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