

# APPROACHING TO EMOTIONAL CONTEXT ON INFORMATION SYSTEMS DESIGN IN A WEB SITE FRONT-OFFICE DEVELOPMENT - A CASE STUDY FOR PUBLIC HEALTH

Octávio Pereira, Tiago Luís, Pedro António

*Department of Computing, Superior School of Technology, Av. Empresario, Castelo Branco, Portugal*

Eduardo Valente, Joao Caldeira, Paulo Alves, Paulo Jesus, João Cordeiro

*Department of Computing, Superior School of Technology, Av. Empresario, Castelo Branco, Portugal*

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Abstract: In the beginning of this paper, a web application development context is described to an analysis laboratory for agriculture purposes. Safety and hygiene matters are introduced as actual concerns for public health and then defined the emotional context appealing interaction between users and web application and information systems in general. The project implementation is then described and finally, some conclusions are taken.

## 1 INTRODUCTION

Nowadays, in the information systems era, the main goal of a company is to obtain profits from the internal knowledge and resources. This purpose is often poor in terms of information management and for business processes organization and optimisation. Considering that employees are the technology itself as they work on the process flow, any computer application development can be accomplished when carrying the information flow to optimise. So, an information system project takes place, and can be often referred actually on a system integration or workflow context issues (Linthicum, 2003).

The globalisation pressure creates opportunities for web-based applications to be installed, representing a company or a community. Social classrooms are created, organized into groups of people, by social, professional, occupational, ethnic or religious characteristics or generally by common interests with a slight knowledge of "social spaces". A web page is actually a natural thing to connect or relate any company reality to a business application, because in these days, either you are on the internet, or you don't, and work as so (Alin et al, 2000).

The web based application development starts, and then the company is involved with the front office layout content definition and customisations to implement and satisfy the requirements. Computer networks are also essential components of any current information system. Through the interconnection of systems and networks it is possible for a huge amount of services and resources to become available to computer system users, transforming the individual ranks of work into true doors accessing the Global Information Society (Monteiro and Boavida, 2000).

Life and work conditions have evolved considerably in Portugal along the recent years. In agriculture, such effort of progress and development has introduced new technologies that changed the agriculturist way of life and related communities. The appearance of regional laboratories for analysis deserves special attention, together with its Internet access. This came to modify deep and quickly the working methods, implying an increase of production and the quality of life. The public health is today a concept of holistic matter and is more and more considered to population. People want to feel good, to live with safety, to watch on what to have confidence, to have certified organizations and products near by (Honoré, 2000).

However, such factors itself are generating security and hygiene problems to professional farmers. Their fast introduction and diffusion in agricultural paths will be a privileged way for changing the existing wrong processes, allowing professionals to know the new associated risks on their own profession, making a significant set of traditional knowledge obsolete, which is mostly deep rooted on the agricultural and regional culture environment. These factors determine the motivation needs to the agriculture intervenient for preventing risks, and also for identifying the proper techniques to some specific tasks. In this way, the motivation of these professionals for prevention has to be inserted into an information process of education that complies with agriculture tradition (Miguel, 2006).

When looking for a reference on clinical analysis or equivalent, we have found the Dr. Ricardo Jorge National Health Institute (INSA, 2006) and Lamartine Clinical Analysis (Lamartine, 2006), both relying in Portugal as analysis laboratories national references. For protection rights we will call the implicit organization in study on this paper as LABSTATEORG, for it represents a laboratory and belongs to a state ministry organization as the called name suggests. The LABSTATEORG purpose is to deliver healthcare and some analysis and quality information results in a systematic way to the public local community, in order to contribute to public health. The project pretends to be a web site to manage and satisfy the requirements to a farmer's community, matching the local rural activity and agriculture issues and deliver the appropriate services. Some intent to reach by this information system is to catch customer opinions, in order to identify problems or lacks in service to improve the laboratory quality of service.

LABSTATEORG possesses human resources and material that has looked to leverage its active participation in the economic, social and cultural region development where it is inserted. The actual cooperation protocols are numerous within a significant set of enterprise structures, production and support to the agriculturists, to cooperate and reply on the resolution of its necessities. The agriculturists insertion and their involving way has been a constant concern, stimulating the inquiry in the directly related domains with the regional necessities, giving services to the community, in a feedback perspective of regional development value. Continuous technology innovations has constrained the society way of life in being and thinking. For instance, at school, information technologies are the most visible face of that change. Web based communities provide a privileged space to its virtual

environment, so that each participant can act in his own way, to learn and interact with others, transforming the web community into a knowledge community. Thus, its importance and it's prominence is today recognized in the valuation and setting of the human resources core competencies and to promote a development process supported in the different sources that constitute the agricultural world, either the production, the alimentary products transformation, or the environment preservation that encircles it (Honoré, 2000).

In the rest of this paper, we discuss the subtle relation between the user and the web application in the context of an information system development and then describing the options taken in the implementation and finally some conclusions.

## **2 THE USER INTERFACE EMOTIONAL CONTEXT PROBLEM DOMAIN**

Science is, on thought about reality, not about tradition, conventions or constructions. Even so, computer science seems too centred on two traditional constructors, the hierarchical simulation or paper simulation. It's a popular myth that structure means hierarchy, and it is just a popular concept that electronic documents can replace the paper. These two concepts have the advantage to be easily explained to beginners. According to this, since the 40's that we have simulated hierarchies to organize computer files and since the 60's we have simulated the paper documents, from text edition to text processing and web publishing. Actually, mixing the hierarchy simulation with paper simulation is offered to us through the Adobe Acrobat application (Adobe, 2006) that simulates both simultaneously and XML – Extended Markup Language (W3C, 2006), a standard that can transform the paper simulation into hierarchy simulation and vice-versa. They can be seen as ideal exercises to complete the paradigms of paper and hierarchy, passing through on top vital matters. In spite of mimesis the real world, we should be correcting the lacks for paper and hierarchies. The fact that things are easier to explain and understand does not make them more correct. Hierarchical organizations are wrong, and generally are incapable. Vital forms of information structures cannot be represented in convenience into hierarchies – structures like parallelism, crossed connection, inter penetration and poli-presence meaning one item into many places. Designing the

organization of files, a set of relationships is forced to be done, and artificially, considered essential and central. We must choose only one hierarchy, like time, project, importance, injuring the other representations. This assumption can leverage some base addresses that should be covered, then by other conventions as pseudonyms, shortcuts and databases (Menezes, 2005).

The LABSTATEORG processes were done all by paper in the past, and the computers were just isolated between them and from the internet. There was no structured network or any privileged way for structuring the electronic information. The paper simulation is also wrong and, generally, it is incapable. Vital matters and document structures are actually ignored in the paper simulation like covers and document parallels, of which notations and spiral controversy are key examples. Issues like versions administration, rights administered citation, and original context availability and the spiral controversy are key examples. Taking away these traditional structures bring us many choices to take in place, which aren't explored yet. As a concept proof, a web application must be tested so that users can experience benefits on new workflow process. Demonstrative examples of these systems already circulate for some time. Now it is time to construct user-guided environments to leave traditional principles. New environments can be more sensible and inhabitable for the common user, and more adapted to the interests for people that the conventional and traditional structures that we have constructed since always. In the conventional paradigm, users must be worried about the nomination of filing cabinets, hierarchy and localization and users need different applications for its worlds of information. Fifty years of tradition on computer science are being cured and annulled to open possibilities that we still don't suspect (Menezes, 2005).

A virtual community is constructed from common interests, knowledge, mutual projects and exchange values, settled in a cooperation process. For the community to have success, in contrast of what many defend, what matters is not the rules imposed, nor the proper technology, but the people, like the professor still the main picture today in school, almost always related with the owner of knowing, the gentleman, he has to teach the way, to show the certain missed. Only changing our way of thinking we can modify deeply rooted politics and practices. Only changing our interacting form we will be able to establish shared visions and understandings, and new capacities to coordinate action. A learning process that modifies the mental models is highly

challenging, perplexing. It can be frightful when collating beliefs and estimated consecrated, it cannot be made separately. It only occurs inside of a community of apprentices. The feeling to belong, the notion that the individual is part of all, and that it cooperates to a common purpose with the other members, the territoriality, the permanence, are essential conditions for the establishment of social relations. The social relations between the members of a virtual community are never distant (Lévy, 1999) (Palloff and Pratt, 1999).

The social life of a community is necessary, for it provides the involvements for sharing knowledge and to the community success itself. These relations are constructed through the mutual interaction between the individuals, in a period of time, having the permanence understood as a continuous secular space of relationship between its basic requirements. The proper community is organized and auto-regulated. All members learn reading the messages, and helping themselves when a situation, problem or question appears. During the interaction processes, the members construct and express abilities, which can be recognized and are valued immediately by the community itself as it constructs intellectual affinities, partnerships and alliances, feelings of friendship and others. It is developed in the groups of interaction, in the same way as it happens between people who are close physically to talk. In the virtual communities of learning, the on-line relations are very far from being cold. They do not exclude the emotions. The personality of each participant finishes being expressed through the style of writing, abilities, taking of position, evidenced in the human beings relationships or interactions. The leader appears naturally. Roles are assumed clearly. Between the members of virtual communities, it is also developed a strong concept of social moral, a species of behaviour code, a set of norms not written in normal relations (Lévy, 1999).

### 3 IMPLEMENTATION

When applying technology in a software engineering project, some boundary issues should be considered. In this particular case was the internet or network, the web language and the database. Some documents were produced in order to specify clearly the problem needs and requirements, using a proper development process methodology for the problem domain. There were two students working on this project, a professor and the coordinator from the LABSTATEORG. The development process methodology taken was RAD (Rapid Application

Development) and a LAMP like technology architecture (Linux – Apache – MySQL - PHP). Linux is for the operative system, Apache is for the Web Server, MySQL is for the database and PHP is for the web language. In spite of the server could be other than Apache or the operating system can be Linux or other, the structure stays the same. We have chosen MySQL database and PHP because they are free (Alin et al, 2000). The web application was integrated with other database and application, which has to manage back-office information. The front-office is the one mainly considered because of the man-machine interfacing problem domain. The logical model was designed with Unified Modelling Language (Muller, 1997) (Fowler and Scott, 1997).

To the creation of web pages, PHP (Hypertext pre-processor) is capable to generate a bigger interactivity with users, as well as creating HTML pages for the Web in a dynamic way. Beyond operation in almost all the known operating systems, it has a null cost of acquisition, which allies its easiness of learning and use, becoming one of the best web development languages. This tool makes the creation of applications possible on different types of platforms equally, due of being extremely attractive and robust, providing implemented functionalities, becoming the election tool for the Web community in applications development. Advanced programmers are able to concentrate themselves in the most complex chapters such as interaction with database or XML, in order to perfect its knowledge (Serrão and Marques, 2005).

## 4 CONCLUSIONS

Due to the strong interaction between developers and the organization along the project, the users become totally pleased with the application, for all process were negotiated together.

The LAMP architecture revealed to be a very easy way to implement any web application, minimizing the development effort. The time for problem analysis is then bigger and thus more considered.

Usability is a very important issue to consider when defining the user interface of any application. The emotional context of information appearance and the way it is revealed enforces the familiarity with users as they perceive the information and interact better.

The community concept is also important, so that users can feel a useful application with the emotional context though to be present.

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