Modelling Public Administration Portals

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INTRODUCTION

Portals for the public administration (PA) are Internet gateways leading to a broad range of services, devoted to a great number of users. The offered services can potentially be all the ones offered by the PA offices. The final users involved are potentially all the citizens, thus ranging from young people to retired ones, to impaired ones. The benefits offered by putting PA services on the Internet are various: a reduced number of employees at the PA offices, an increased number of citizens that can interact with the PA, immediately available information (news, laws, regulations), faster data integration in PA informative systems, and overall costs reductions (citizen mobility, time consumption, etc.). Such benefits are driving a wide diffusion of PA portals with an increasing number of accesses and users (Reis, 2005).

Although the number of PA portals available is increasing, their use by citizens is still limited due to usability problems and the low quality of the offered services (Atkinson & Leigh, 2003; Cullen, O'Connor, & Veritt, 2003; Nielsen, 1999).

To obtain usable PA portals, a design methodology that considers the user interaction in the early development phases must be adopted (Conallen, 2003). This already happens for e-commerce Web sites (Nielsen, 1999). Conversely, as usually happens with standard development tools for portals, accessibility, and usability issues are faced at the end of the PA portals development process, with high costs and growing times to the final release.

Focusing on usability issues, the purpose of our article is twofold: (i) analyzing requirements and standard methodologies to design the user interaction in such environment, and (ii) proposing a design methodology to solve usability problems. Usual methods model some navigation aspects, but they are not focused on usability and layout design issues; neither do they make the comprehension of the navigation aspects easier. In order to face user experience problems and speed-up the whole development process, we designed a methodology (Prete, Foglia, & Zanda, 2005a, 2005b) and a set of tools for the rapid development and deployment of PA portals.

In the following, we identify main PA portals requirements. Then, we describe methodologies to design and develop Web sites and PA portals and present our methodology to rapidly develop and deploy usable PA portals. Finally, we draw conclusions.

PA PORTALS REQUIREMENTS

Functional Requirements

Due to their importance, most of the PA central offices have analyzed the functional requirements of PA portals (Reis, 2005). They identified *classes of services*, *classes of users,* and the *sophistication degree*.

Classes of services identify the sets of services that must be furnished by PA portals. They are classified according to the citizens' lifestyle and mental model to respect the users' own classification.

Classes of users identify homogeneous groups of actors involved in interactions with the PA portals, and their main informative needs. They are classified following their roles, their skills, and their previous knowledge.

The *sophistication degree* specifies the way and to what extent a service is provided remotely to the *users*. Four *sophistication degrees* can be identified. The first stage is represented by just providing some information to complete the procedure. The second stage is the *one-way* phase with documents download, and the third stage is the *two-way* phase with the filled in documents that can be uploaded. The fourth stage is reached when the whole procedure can be completed online, including payments.

Table 1 shows a specification of *classes of services* adopted by the Italian PA (GU, 2002; Resca, 2004; Signore, Chesi, & Pallotti, 2005). More than 500 services are fully specified. Other classifications may be found in literature (Kaylor, Deshazo, & Van Eck, 2001). A classification summary of *users* and relative needs is given in Table 2 (Reis, 2005).

Table 1. Sample classification of PA services specified by Italian Government

Users	Class of Services				
Citizens	*Being a citizen*	*House*	*Free time*	*Health*	*Sports*
	Legal issues	*Education*	*Transports*	*Work*	*Voting*
	Retirement	*Taxes*	*Cultural activities*		
Companies	*Starting a new activity*	*Developing existing activities*	*Modifying an existing activity*	*Funds*	*Personnel/employees*
	Buildings	*Taxes*	*Import/Export*	*Legal issues*	

Table 2. Classes of users and relative needs

User Class	Most Required Services			
Students	*Education*	*Jobs*	*House*	*Public Transports*
Normal Citizens	*Payments*	*Security*	*House*	*Public Transports*
Tourists	*Accommodation*	*Cultural Attractions*	*Public Transports*	
Foreigners	*Regulations*	*VISA*		
Companies	*Taxes*	*Laws*	*Financial Services*	
Retired People	*Health*	*Public Transports*		
Elected Officials and Candidates	*Personal info*	*Q&A*	*Laws and Regulations*	
Portal Administrators	*Content Management Systems*			

Concerning other functional requirements, connections with heterogeneous back-end informative systems are outside the scope of this article. However, we can say that governments are specifying common protocols and interfaces for the various PA portals. For instance, in the Italian scenario, government is developing a unified application interface (SPC, 2005), and each administration will have to conform to such specification.

Usability and Other Non-Functional Requirements

Atkinson et al. (2003) emphasize the importance of having PA portals that are easy to use: "too often customer-focused portals have mostly meant putting a myriad of links on one Web page." They show that in many PA portals citizens have to navigate deeply in the site to find out that they cannot perform their tasks online. Cullen et al. (2003) describe the New Zealand local administration Web sites: "although over 90% of users approached a particular site seeking specific information, less than half were able to find the information

they sought." It turns out that the main problem in PA portals is not the design of services and communication protocols that are well specified, but the way contents and services are presented to the final users.

Many Web usability guidelines have been identified (Curtin, Sommer, & Vis-Sommer, 2003; Nielsen, 1992, 1999, 2001a; Nielsen & Tahir, 2001b), particularly in the e-commerce field (Nielsen, 2001a). Such guidelines are a set of rules and patterns that must be followed in content presentation and service delivery to achieve a good level of user interaction. Unfortunately, such guidelines can only be partially applied to the design of PA portals. Indeed, PA portals users differ from e-commerce ones and they have different aims and needs. Essentially, e-commerce portals are accessed because users (and providers) want to, while PA portals are accessed because users have to. As a consequence, a major metric in e-commerce sites is the conversion rate-percentage of visitors that become customers (Nielsen, 2001a; Prete, 2005b)—while in PA sites, a major metric is the completion rate—percentage of visitors that complete their task (Withrow, Brick, & Speredelozzi, 2000). Hence, e-commerce sites emphasize the products presentation with

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