Accessibility, Usability, and Functionality in T-Government Services

Margherita Pagani
Bocconi University, Italy

Chiara Pasinetti
Bocconi University, Italy

INTRODUCTION

The transition process from analog to digital system, above all in the broadcasting field, and the development of Third Generation standards in mobile communications offer an increasing number of value-added services: the incumbent actors (i.e., local and central administrations, local health structures and hospitals, dealers of public services) have the opportunity to provide e-services to citizens by exploiting the new technologies (digital television, mobile).

The centrality of technology for citizens is a central issue in the Information Society policy, at a local, regional, national, European, and global level. In Europe, the action plan called "eEurope 2005"[1] aims to increase productivity, better public services, and above all guarantee to the whole community the possibility to participate in a global information society, promoting new offers based on broadband and multiplatform infrastructures. Therefore, new devices, such as *digital television* and mobile systems, are becoming innovative and complementary solutions to the PC.

As service providers must guarantee an adequate interface to the citizen, it is also important to identify the critical variables influencing the design of the new t-government services. We explore in this chapter accessibility, usability, and functionality of the systems as the key drivers to build a pervasive offer.

BACKGROUND

The term e-government refers to the group of techniques for the use of methods and tools of an ICT world, aimed to make easier the relationship between the public administration and the citizen (Kannabiran, 2005; Koh, Ryan, & Prybutok, 2005; Marasso, 2003; Norris, Fletcher, & Holden, 2001; Northrup & Thorson, 2003).

E-government is the delivery of online government services, which provides the opportunity to increase citizen access to government, reduce government bureaucracy, increase citizen participation in democracy, and enhance agency responsiveness to citizens' needs.

Previous studies (Bruno, 2002; Gronlund, 2001; Marasso, 2003; Norris & Moon, 2005; Traunmuller & Lenk, 2002) consider the PC as the main device to access e-government services, and few researchers in the literature consider digital TV and mobile as new devices to provide e-government services. The geographical, demographic, social, and cultural gap, associated with the limited skills and knowledge to manipulate the PC, bring to the awareness that the network will be a precious virtual place of acquisition and exchange of information, but not so pervasive as mobile systems and television.

The term *t-government* refers to the whole range of *services* characterized by a social and ethic mission, transmitted through *digital television* (satellite, terrestrial, cable, ADSL) and provided by the Public Administration. The aim is to reduce the distance between government and citizens and make easier the efficiency and efficacy of public administration activities (CNIPA, 2004).

E-government and *t-government* differ because of the media used to vehicle the value-added *service*. T-government, however, has the advantage to address to all the people far from the knowledge and capabilities that the computer requires. In Europe, Italy, the UK, and the Scandinavian countries were the first countries to promote the use of t-government.

The main areas of application for t-government *services* are:

- Access to the existing public information
- Online forms
- Online services directed to the citizens (education, mobility, health, postal services)

The purpose of this chapter is to identify the critical variables influencing the design of the new t-government services.

A well-accepted model of service quality conceptualization is the *technical/functional quality* perspective (Arora & Stoner, 1996). Technical quality refers to what is provided, and functional quality considers how it is provided (Lassar, Manolis, & Winsor, 2000). Examples of technical quality might include quality and effectiveness. Functional quality, on the other hand, comprises the care and/or manners of the personnel involved in the delivery of service products (Lassar et al., 2000).

The functional quality of the service is one of the most important factors influencing the adoption process (Grönroos, 1984; Higgins & Ferguson, 1991).

While the concepts of technical and functional quality are easy to understand, it is less simple to test them through empirical means since consumers find it difficult to separate how the service is being delivered (*functional*) from what is delivered (*technical*). Consumers may find it difficult to evaluate the service quality (Berkley & Gupta, 1995) because of their unfamiliarity with a new electronic delivery method such as digital television.

Parasuraman, Zeithaml, and Berry (1985) proposed a model with five dimensions (tangibles, reliability, responsiveness, assurance, and empathy) measuring the gap between consumer evaluations of expectations and perception (i.e., the disconfirmation model of service quality).

Cronin and Taylor (1992) proposed a model based solely on consumer perceptions removing the considerations of pre-consumption expectations because they argued that customer evaluation of performance already included an internal mental comparison of perceptions against expectations.

Dabholkar (1996) proposed two models to capture the impact of service quality on intention to use: one based on quality attributes, and the other on affective predispositions toward technology. The attribute model used dimensions consistent with the service quality literature.

Dabholkar (1996) used a factor (ease of use) from the TAM work, but did not investigate the potential benefits of using the model itself. The results of the study demonstrated that speed of delivery, ease of use, reliability, enjoyment, and control were all significant factors in determining expected service quality. Other researchers (Meuter, Ostrom, Roundtree, & Bitner, 2000; Szymanski & Hyse, 2000) demonstrated that consumers compared the novel technology service delivery with the traditional alternatives.

Therefore, the proposition is that by combining the attitude-based and service quality-based approaches, the strong theory linking attitudes to behaviors can be exploited (DOI, TAM), with the service quality literature being used to help identify the antecedents that affect these attitudes.

This enables a grounded approach to measuring the variables associated with technology adoption, placing the onus on both the factors affecting consumer intentions to adopt a government service and the factors representing a barrier to adopt.

T-GOVERNMENT QUALITY INDICATORS

The literature of information technology (IT) applications in public administration (Censis, RUR, 2003) identifies over 120 indicators grouped into six main categories for *e-government services*:

1. Reliability
2. Type of interaction, that is, G2C or G2B
3. Usability, that is, search engine or site map
4. Accessibility
5. Structure of the Web site
6. Technological tools: speed of delivery

Researches in the area of e-government and t-government services (Daloisi, 2004; Davis, 2005; Delogu, 2004; Seffah, Donyaee, & Kline, 2004) show that there are some critical dimensions that must not be ignored:

a. Accessibility
b. Usability
c. Functionality of technological tools
d. Content type

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