

Level-Based Development of E-Government Services

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INTRODUCTION

As the Web is growing exponentially, the way of provision governmental information and services has been changed by the newly supplied technological capacities and digital channels. More and more governments all over the world are trying to acquire an electronic profile, in order to offer advanced services to their users (citizens and businesses). Two basic factors have significant contribution to this direction. The first considers the continuous increase of the users' daily needs (e.g., information searching, certificate requesting). Traditionally, the completion of these tasks implies a lot of valuable time to be lost in the tracking of responsible actor and in the waiting in queues. The second one refers to the ongoing access of the users with the Internet. This new way of communication facilitates the transactions and helps in providing better public services.

It is clear that e-government's successful development and operation demands proper design, which will comprise the basis for its application. Information and communication technologies (ICT) may contribute essentially to this direction, as long as government and users adopt them under the framework of a broader reorganization of the public sector. This adaptation can be implemented gradually in levels, which will enable the unobstructed data flow from/to government and will give the opportunity to citizens and businesses to obtain the highest access to the provided governmental services. Only under these circumstances, this transition will lead to a series of strategic, administrative and operational benefits (NOIE, 2003; OGC, 2003), for example, best coverage of users' needs, cost and time savings, and so forth.

This article is intended to present a level-based approach for the development of e-government services, starting from the lowest one to the highest and more complicated. Following gradually this sequence of tech-

nological levels and incorporating with strategy, coordination, and know-how, an organization can realize the vision of e-government, provide reliable online information and services to their users and improve their efficiency and effectiveness.

BACKGROUND

Although the literature relating to this area proliferates, the definition and the various models of e-government are still unclear among researchers and practitioners of public administration. According to the E-Governance Institute (2004),

E-governance involves new channels for accessing government, new styles of leadership, new methods of transacting business, and new systems for organizing and delivering information and services. Its potential for enhancing the governing process is immeasurable.

Another quite broad definition, which incorporates its four key dimensions that reflects the functions of government (i.e., e-services, e-democracy, e-commerce and e-management) is the following:

E-government is the use of information technology to support government operations, engage citizens, and provide government services. (Dawes, 2002)

E-government can be distinguished into three basic categories: (a) *government to citizen (G2C)* that relates to the relationships between governments and citizens; (b) *government to business (G2B)* that relates to the relationships between governments and businesses; and (c) *government to government (G2G)* that relates to the

Table 1. Pioneer countries in e-government

Country	Description
CANADA	Canada's e-government portal offers information and services organized by the target-group in which are attended (e.g. Canadians, non-Canadians, businesses, etc.). Departments and agencies, structure of the government of Canada, provinces and territories, municipalities, new initiatives for Canadians, government contacts, justice and law, public safety, and so forth are only some of the supported services. http://www.canada.gc.ca
SINGAPORE	Singapore's government Web site supports three portals for (a) citizens and residents (b) businesses and (c) non-residents. eCitizen is positioned as the first-stop for government services on the Web and enables users to search for and access a diversity of information, as well as to conduct a wide range of online transactions with government agencies (including culture, recreation and sports, defense and security, education, learning and employment, family and community development, health and environment, housing, transport and travel). eBusiness is a gateway to a host of government services ranging from accessing information that is pertinent to businesses, exploring governmental assistance, to filling in important forms needed to start or grow a business. Finally, the portal for non-residents provides information about visiting, relocating, working, studying or doing business in Singapore. http://www.gov.sg , http://www.ecitizen.gov.sg , http://www.ecitizen.gov.sg/nonresidents , http://www.business.gov.sg
UK	UK's portal constitutes a trial of British government to provide services via Internet. Today, the portal offers: guidance to government, judicial system, submission of applications for VAT, taxes return, registration to vote, finding local childcare, application to universities, agricultural subsidies from Commission, and so forth. http://www.ukonline.gov.uk
USA	USA also has early demonstrated a steady advance in e-government, which is close, related to the fact that they are one of the main providers of software and hardware solutions. The high penetration factor of American citizens in Internet has significantly contributed to reach this fact. Their first portal created for this purpose is an effort to gather all governmental web sites in one place (one-stop shop). http://www.firstgov.gov

activities that improve and upgrade governments' services (Egov, 2003).

Table 1 presents some of the best practices in e-government worldwide.

E-GOVERNMENT LEVELS

The application of e-government is not a trivial or straightforward procedure. It demands strategy, management as well as the use of technological tools for planning, design, implementation, and evaluation. So, the transfer from traditional government to an electronic one can be realized gradually in levels (Markellou, Panayiotaki, & Tsakalidis, 2003). These levels, beginning from lowest and advancing in most complicated, are depicted in Figure 1. Specifically, two paths can be identified: (a) the *obligatory upgrade* indicates that when the starting level of an arrow is implemented, then the ending level of the arrow must be implemented as well; and (b) the *optional upgrade* indicates that when the starting level of an arrow is implemented, then the ending level of the arrow may be implemented as well. Moreover, the presented levels are grouped into three sets: (a) the *obligatory levels* are the levels met during the obligatory upgrade path; (b) the *optional levels* are the end levels of an optional upgrade

path; and (c) the *obligatory levels if certain path followed* are the levels that must be implemented when certain optional upgrade paths are followed. In the following paragraphs the description of each level of the proposed approach is given. Levels 1, 3, 4, 5 are proposed for G2G purposes, while Levels 6-13 are proposed for G2B and G2C purposes.

Level 0: Internal Organization

The lowest level considers the authority's internal organization. This includes the supply of hardware/software infrastructure for office applications, as well as the necessary network interconnection. This level constitutes prerequisite for the implementation of the remainder levels in order to fully support e-government services.

Level 1: Electronic Protocol

This level refers to the computerization of authority's documents with the passage from the conventional protocol (manuscript) to the electronic one (file). Specifically, the book of incoming/outgoing documents is suppressed and document distribution henceforth is kept electronically for timesaving and facilitation in document searching and recovering. Each service has its own protocol

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