

# A Stage Model for E-Government Implementation

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## 1. INTRODUCTION

With the advancement of wired and wireless technologies in recent years, the concept of an e-government has attracted increasing interests from both researchers and practitioners. The E-Government Act of 2002 was signed into law by President Bush to encourage government agencies to efficiently and effectively serve their customers over the Web. E-government presents a way for government agencies to use new technologies, such as the Internet, to provide citizens, businesses, and other governments with a more convenient access to government information and services, to improve the quality of services, and to provide greater opportunities for citizens to participate in democratic institutions and political processes. The importance and application of e-government are nicely summarized in a document from the White House (White House, 2002). The strategic vision of e-government is:

- (i) Citizen-centered, not bureaucracy-centered;
- (ii) Result-centered; and
- (iii) Market-centered, actively promoting innovation.

This vision indicates four major areas of e-government development, including government-to-customer (G2C), government-to-business (G2B), government-to government (G2G), and government-to-employee (G2E).

Among the four areas, G2C and G2E involve interaction and cooperation between government and individuals, while G2B and G2G both address interaction between government and organizations. Moreover, G2C and G2B represent the external interaction and collaboration between government and outside institutions, while G2E and G2G involve the internal interaction and cooperation between the government and its employees, and between other governments at different levels and at different locations.

With successful implementation, the e-government has the potential to make valuable and highly effective connections between government and citizens (G2C), government and business (G2B), government and employee (G2E), and government and government (G2G). However, the concept of e-government and research on e-government are still in their infancies. There is an urgent need to study how to efficiently and effectively develop e-government systems and how to measure its progress so as to establish a road map to achieve the desired service level. This paper presents a stage model on e-government implementation.

## 2. RESEARCH QUESTION AND OBJECTIVE

In this research, we are interested in developing a stage model to guide e-government implementation. A few models have been developed to depict e-government stages in the literature (Hiller's 2001; Deloitte, 2001; Layne & Lee, 2001; Moon, 2002; and Gartner Group, 2000). However, there are two major issues with these models. First, these models are developed from difference perspectives. Second, some of the stages in these models either are overlapping or are inconsistent with each other. In order to better understand e-government from an evolving perspective, this paper proposes a comprehensive stage model for e-government implementation based on literature review and conceptual analysis.

## 3. LITERATURE REVIEW AND CONCEPTUAL FOUNDATION

Several e-government models have been proposed by researchers (e.g., Hiller, 2001; Layne & Lee, 2001; Moon, 2002) and research institutions (e.g., Gartner Group, 2000; Deloitte & Touché, 2001). In the following subsections, we briefly discuss the various models.

### 3.1. Hiller's and ASPA's five-stage model (2001)

Arguing that the purpose of an e-government is to provide web-based public service, Hiller (2001) proposed an e-government model consisting of five stages:

- (i) emerging web presence;
- (ii) enhanced web presence;
- (iii) interactive web presence;
- (iv) transactional web presence; and
- (v) fully integrated web presence (Hiller, 2001).

The framework has also been suggested by the United Nations (UN) and American Society for Public Administration (ASPA, 2001) – except for some very minor differences in phrasing. The five stages in ASPA's model are:

- (i) Emerging presence;
- (ii) Enhanced presence;
- (iii) Interactive presence;
- (iv) Transactional presence; and
- (v) Seamless or fully integrated presence.

### 3.2. Deloitte's six-stage model (2001)

Believing that the purpose of e-government is to serve citizens as customers and to build a long-term relationship with citizens, Deloitte (2001) proposed a six-stage model as described below:

- (i) Information publishing/ dissemination;
- (ii) "Official" two-way transaction;
- (iii) Multi-purpose portals;
- (iv) Portal personalization;
- (v) Clustering of common services; and
- (vi) Full integration and enterprise transaction.

### 3.3. Layne & Lee's four-stage model (2001)

Based on technical, organizational, and managerial feasibility, Layne & Lee (2001) regarded e-government as an evolutionary phenomenon and proposed a four-stage model. The four stages are referred to as:

- (i) Catalogue;
- (ii) Transaction;
- (iii) Vertical integration; and
- (iv) Horizontal integration.

### 3.4. Moon's five-stage model (2002)

Moon (2002) extended Layne & Lee's (2001) model with a new stage known as political participation. Moon's (2002) five stages are:

- (i) Simple information dissemination (one-way communication);
- (ii) Two-way communication (request and response);
- (iii) Service and financial transaction;
- (iv) Vertical and horizontal integration; and
- (v) Political participation.

### 3.5. Gartner's four-stage model (2000)

Gartner Group (Baum and Maio, 2000) proposed a four-stage model involving

- (i) Web presence;
- (ii) Interaction;
- (iii) Transaction; and
- (iv) Transformation.

## 4. A STAGE MODEL FOR E-GOVERNMENT IMPLEMENTATION

The five models differ because they are developed from different perspectives. Hiller's (2001) five-stage model and ASPA's five-stage model focus on a web-based public service; Deloitte's (2001) six-stage model is based on the customer service perspective; Layne & Lee's (2001) four-stage model and Moon's (2002) five-stage model are developed based on a general or an integrated perspective combining technical, organizational, and managerial feasibility. Gartner's (2000) four-stage model is straightforward and concise. However, like the model proposed by Layne & Lee (2001), Gartner's (2000) four-stage model misses out on the political participation component and does not address the possible changes in the way decisions are made in government.

We synthesize the various models and propose a new e-government model that consists of five stages:

- (i) Web presence;
- (ii) Interaction;
- (iii) Transaction;
- (iv) Transformation, and
- (v) E-democracy.

The first four stages of our five-stage model are similar to the one by Gartner (2000). We added a fifth stage, e-democracy, to the Gartner's (2000) four-stage model. We believe that e-democracy is a vital stage in achieving the vision of e-government. In the e-democracy stage, citizens and businesses will gradually change the way they interact with governments. It becomes easier for them to express their opinions, and

they actively participate in political activities, such as online polls, surveys, conversation forums, and e-meetings.

## 5. POTENTIAL CONTRIBUTIONS AND FUTURE RESEARCH DIRECTIONS

This paper first reviews five models which focus on the e-government development stages. Based on the literature review and conceptual analysis, the paper then discusses the strengths and weaknesses of each model and proposes a new five-stage model involving web presence, interaction, transaction, transformation, and e-democracy. This new five-stage model provides a good conceptual foundation to guide future research on e-government. For practitioners, the model presents a road map for them to follow in their e-government projects.

The new five-stage model is developed based on the literature review and conceptual analysis. We plan to conduct case studies to provide empirical evidence on the validity and representativeness of the new model. We also plan to look into other research topics in e-government, such as technology in e-government evolution, security and privacy, customer relationship management, knowledge management. These are timely topics which require serious attention and further investigation.

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