A Citizen Oriented E-government Maturity Model

By: Hala Al-Khatib

Business School

Brunel University

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Supervisor: Dr. Habin Lee / Prof. Ray Hackney
Agenda

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Introduction

E-government implies servicing citizens in public sector via ICT. There are many definitions of e-government in the literature. The most which was cited in most Literature is: “Electronic government refers to government’s use of technology, particularly web-based Internet applications to enhance the access to and delivery of government information and service to citizens, business partners, employees, other agencies, and government entities”. (Layne, Lee 2001)

There are many e-government maturity models in the literature. Maturity models are defined as: “A method for judging the maturity of the processes of an organization & for identifying the key practices those are required to increase the maturity of these processes”. (Windley, P., 200)

The Gap of this research is that the maturity models in the literature are mainly provider’s (technical perspective (efficiency). A new maturity model based on “Citizens’ perspective (effectiveness)” is needed.

Aim and Objectives of the Study

The aim:

To develop e-government maturity model from citizen’s perspectives

The objectives:

• To review the needs of citizens in the context of maturity model
• Propose new maturity model from Citizen’s perspectives their needs and their wants.
• Verify the maturity model in real world context
Literature Review

Maturity Models

- Capability Maturity Models (CMMs) provides five maturity levels for software development. Each maturity level indicates process capability & contains a number of key processes directed at achieving (SearchSoftwareQuality.com)

- Used as guidelines to measure the maturity of the software development process at an organization.
E-government maturity models:

E-government stage models are either developed by:

- Institutions (e.g. United Nations and American Society for Public Administration, 2001; Baum and Di Maio, 2000; Gartner Group Deloitte and Touche, 2001)
- Individual researchers (e.g. Hiller and Bélanger, 2001; Layne and Lee, 2001; Moon, 2002)

A. **Gartner Group** (Baum and Di Maio, 2000) proposed a four-stage model involving web presence, interaction, transaction, and transformation:

1. **Web presence** – in this stage, agencies provide a web site to post basic information to public; (immediate action is initiated toward the creation of a virtual environment on the Internet in the Presence stage, in order to provide the public with access to information)
2. **Interaction** – in this stage, users are able to contact agencies through web sites (e.g. e-mail) or do self-service (e.g. download document); (providing a web site with search ability, and to providing the public with access to various forms and sites)
3. **Transaction** – in this stage, users (including customers and businesses) can complete entire transactions (e.g. license application and procurement) online; (implicates the online execution of public services such as the payment of accounts balances and receiving licenses.)
4. **Transformation** – in this stage, governments transform the current operational processes to provide more efficient, integrated, unified, and personalized service; (the Transformation stage is seen at the regional and national levels, consisting of integration among internal and external applications, in order to provide full communication between the governmental offices and non-governmental organizations)

B. **UN's five-stage model (2001)**

United Nations and American Society for Public Administration (2001) suggested an e-government model which consists of five stages (efficient web-based public service):

1. **Emerging presence** – a single or a few independent government web sites provide formal but limited and static information;
2. **Enhanced presence** – government web sites provide dynamic, specialized, and regularly updated information;

3. **Interactive presence** – government web sites act as a portal to connect users and service providers, and the interaction takes place at a more sophisticated level;

4. **Transactional presence** – users have the capability to conduct complete and secure transactions, such as renewing visas, obtaining passports, and updating birth and death records through a single government web site; and

5. **Seamless or fully integrated presence** – governments utilize a single and universal web site to provide a one-stop portal in which users can immediately and conveniently access all kinds of available services.

C. **Deloitte's six-stage model (2001)**

Believing that the purposes of e-government are to serve citizens as customers and to build a long term relationship with citizens, Deloitte & Touche (2001) proposed a six-stage:

1. **Information publishing/dissemination** – Governments provide users with increased access to information

2. **“Official” two-way transaction** – agencies are used to provide interaction between governments and users by using information and communication technologies such as digital signatures and security keys

3. **Multi-purpose portals** – governments utilize a single portal to provide universal service across multiple departments

4. **Portal personalization** – governments enable users to customize portals according to their own desires

5. **Clustering of common services** – governments enhance collaboration and reduce intermediaries (between operational processes) in order to provide a unified and seamless service

6. **Full integration and enterprise transaction** – an ideal vision in which governments provide sophisticated, unified, and personalized services to every customer according to their own needs and preferences.
D. Layne and Lee's four-stage model (2001)

Based on technical, organizational, and managerial feasibility, Layne and Lee (2001) regarded e-government as an evolutionary phenomenon and proposed a four-stage model.

1. **Catalogue.** This stage delivers some static or basic information through web sites.
2. **Transaction.** This stage extends the capability of catalogue and enables citizens to do some simple online transactions such as filling government forms.
3. **Vertical integration.** This stage initiates the transformation of government services rather than automating its existing processes. It focuses on integrating government functions at different levels, such as those of local governments and state governments.
4. **Horizontal integration.** This stage focuses on integrating different functions from separate systems so as to provide users a unified and seamless service. (Layne, Lee 2001)

E. Hiller and Bélanger's five-stage model (2001) and Moon's five-stage model (2002)

Hiller and Bélanger (2001) identified a five-stage model:

1. **Information**
2. **Two-way communication**
3. **Transaction**
4. **Integration**
5. **Participation**

F. Moon (2002) adapted Hiller and Bélanger (2001) five-stage model (despite some minor differences in phrasing)

1. **Simple information dissemination (one-way communication):** This is the most basic form of e-government, which disseminates information by simply posting it on the web sites.
2. **Two-way communication (request and response):** Interaction occurs between governments and users.
3. **Service and financial transaction**: Transactions occur both between governments and individuals (e.g. obtaining visa), and between governments and businesses (i.e. ordering office facilities).

4. **Vertical and horizontal integration**: This is similar to the last two stages in Layne and Lee (2001) four-stage model. This stage refers to integrating separate systems at different levels (vertical) and from different departments (horizontal).

5. **Political participation**: Promotion of political participation through services such as online voting and surveys. (Moon 2002)

(Siau, Long 2005) suggested five different e-government stage model capturing the whole vision of e-government (using Meta-synthesis method). The model is simple, and includes the main ideas of previous mentioned models. (Siau, Long 2005) translated the stages within different models into one another and developed a new e-government stage model. (Using Meta-synthesis method)

The new e-government stage model has the following five stages: web presence, interaction, transaction, transformation, and e-democracy.

1. **Web presence**: This phase is the most basic form of e-government. In this stage, governments typically post simple and limited information through their web sites, such as the agency's vision and mission, office hours, contact information, and official documents. At first, most of the information is static. However, with the advancement of e-government capability, the information posted can be more dynamic, specialized, and regularly updated. The main difference between this stage and other higher stages is that in this stage, governments only provide information on the web sites and no interaction is possible.

2. **Interaction**: This phase provides simple interaction between the governments and the users. This includes basic search engines, e-mail systems, as well as official form downloads. Interaction, as the preliminary step of transaction, can be regarded as a transitional period between simple web presence and complete transaction.

3. **Transaction**: This phase enables users (including both individual citizens and business) to conduct complete online transactions. Citizens can conduct self-services online such as license applications, tax filing, and personal information updates. In addition, businesses can access online services such as fulfilling tax forms, applying
licenses and reporting financial data. Online businesses such as obtaining order and making auctions are also possible.

4. **Transformation**: There is a “jump” between transformation and the previous three stages. Rather than automating and digitalizing current operational processes, this stage moves towards transforming the way that governments provide services. The transformation involves both vertical (i.e. governments in different levels) and horizontal integration (i.e. different departments or governments in different locations). For external interfaces, governments build a single and unified portal providing integrated and seamless services instead of separate and distributed services. To achieve this aim, governments should initiate an internal integration to re-engineer existing processes by reducing bottlenecks and intermediaries.

5. **E-democracy**: This is a long-term goal for e-government development. By offering tools such as online voting, polling and surveys, governments attempt to improve political participation, citizen involvement, and politics transparencies. At the same time, e-government gradually changes the way in which people make political decisions.

(Andersen, Henriksen 2006) proposed the (Public Sector Process Rebuilding (PPR) Model) which was an extension of the Layne and Lee Model four stages (Catalogue, Transaction, Vertical integration and Horizontal integration).

The major difference between the Layne and Lee model and the Public Sector Process Rebuilding (PPR) model that is, (customer centric approach rather than the technological capability).
Comparison between Layne and Lee Model and the PPR model

Layne and Lee Model

Horizontal integration
- Systems integrated across different functions
- Real one stop shopping for citizens

Vertical integration
- Local systems linked to higher level systems
- Within similar functionalities

Transaction
- Services and forms online
- Working database supporting online transactions

Catalogue
- Online presence
- Catalogue presentation
- Downloadable forms

Public Sector Process Rebuilding (PPR) maturity model

Phase IV: Revolution
Data mobility across organisations
Application mobility across vendors
Ownership to data transferred to customers

Phase III: Maturity
Abandoning of intranet
Accountability + transparent processes
Personalized web-interface for customer processes

Phase II: Extension
Extensive use of intranet
Personalized web-interface for customer processes

Phase I: Cultivation
Horizontal & vertical integration within government
Front-end system
Adoption and use of intranet

Few, rare
Activity centric applications

Widely applied
1. **Phase 1: The cultivation**: shelters horizontal and vertical integration within government, limited use of front-end systems for customer services, and adoption and use of Intranet within government. There can be elements of self-service but most often in the form of PDF files that can be downloaded, completed, and then returned either as an attachment to e-mail or by mailing the completed form to government.

The organizations in this group are not likely to have digital services in focus and will rarely have work processed and displayed through the net. Instead, the organization is unclear whether to define the objective with the use of the Internet to increase the user frequency, the services provided, and/or the quality and speed of services.

From the user point of view, the Internet interface to the public institution in this phase can be experienced as yet another means of enforcing “gate keeping” and filtering the users. By gate keeping, the employees are protecting against stress and they are able to control the information flow. The downside is that the public institution in this phase will be experienced as inaccessible, have long case processing time, and no accessibility for accessing the processing of requests. (Andersen, Henriksen 2006)

This is the stage where most governments are now, and worse it is often considered a strategic goal for most governments. Having the characteristics of this phase as a strategic goal can be counter productive to the activity and customer focus.

2. **Phase 2: The extension stage** with extensive use of intranet and adoption of personalized Web user interface for customer processes. There is a sharp distinction between “our data” and the services provided through “them”.

Ownership and data infrastructure are essential as in phase I, but the Web user interface is targeted towards the end-users rather than other public authorities or the agencies themselves. The ambition of having a user interface for the end-users shines through the actual Web site. While this is a key difference between phases I and II, this ambition also presents a key failure risk and precipitates costly user interfaces, no integration with other systems, expensive maintenance, and fading out of old software and data format.

At this stage there are still many manual routines, and while the user might be likely to find many forms and information, the agency is equally interested in re-directing the users to information at other agencies.
Whereas it is a frequent feature at many Web sites to provide link icons to other information, we view this feature negatively: The more links to other places, the more negative we would rate the agency because this indicates that the users did not get their requests for information rewarded at this particular agency.

3. **Phase 3**: is the stage where the organization matures and abandons the use of the intranet, have transparent processes, and offers personalized Web interface for processing of customer requests. The Internet and intranet have merged and the key concern is to use IT to lower the marginal costs for processing the customer requests for services. Rather than linking to other institutions, the homepage is feeding information from other institutions to the users online. Further, the Web site is organized to solve problems and requests rather than presenting formal organizational structures and general information. Self-service is a key priority in this phase and the exceptions where this cannot be completed online are clearly stated with instructions on how to proceed in analog mode.

4. **Phase 4: Revolutionary phase** characterized by data mobility across organizations, application mobility across vendors, and ownership to data transferred to customers. In this phase, the employees' actions can be traced through the Internet and there is information available online about progress in, for example, case handling. This is possible through intra- and extra organizational mobility of data and services. Also, economics of scale is sought after actively. The Internet is not seen exclusively as a means to create increased mobility within the government. Rather, the ambition is to transfer data ownership and the orientation of data base infrastructure to the end-users. (Andersen, Henriksen 2006)

There indeed is a long push to reach phase IV. The blooming literature on e-government has provided the fuel for the hypothesis that governments are still predominately in phase I, that is, they are aiming for data and system integration but have only limited front-end services, and essentially still have an intra- and intergovernmental view of the development and implementation of IT.

Accordingly, a personalized Web interface for customer processes, data mobility across organizations, application mobility across vendors, and transfer of data ownership to the customers is still not implemented and constituted in light of the PPR approach key challenges to be met. (Andersen, Henriksen 2006)
The proposed maturity model is changing the focus of e-government to the front-end of government and away from a technical integration issue, as is suggested in the Layne and Lee Model. Also, contrasting the Layne and Lee model, the proposed PPR model emphasizes the digitalization of the core activities not from the perspective of what is technologically feasible but from what is beneficial for the end-users regardless of the possible internal changes caused by the digitalization.

**Research Methods:**

Design science approach:

Identifying the problem (Lack of citizen oriented maturity model) by developing a novel design to solve the problem:

- Identify different layers of citizen needs of e-Government services
- Propose a maturity model based on the need hierarchy
- Propose a process model to guide how the maturity model can be applied to real world e-Gov systems
- Field trials of the models in the UK, Turkey & Lebanon

**Significant of the study:**

- The first citizen oriented service maturity model in public sector
- More citizen-centric e-government model will make citizen interact more frequently with government.

**Future plan work:**

- Investigate more literature about citizen-perspective’s needs from e-services (e-business, e-commerce, e-banking etc.)
- Find similarities and differences between users’-centric models in other disciplines and e-gov.
- Identify relations and attributes of the new model.
- Data collection (verification) in Turkey this year.

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References:


