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Keng SIAU

Singapore Management University, klsiau@smu.edu.sg

Y. LONG

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Synthesizing e-government stage models – a meta-synthesis based on meta-ethnography approach

Synthesizing
e-government
stage models

443

Keng Siau and Yuan Long

*Department of Management, College of Business Administration,
University of Nebraska-Lincoln, Lincoln, USA*

Abstract

Purpose – The growing interest in e-government raises the question of stages in e-government development. A few stage models for e-government have been proposed. Without a common e-government stage model, different research in e-government may be based on different stage models. This presents a difficulty in comparing and understanding different research results. In this research, we synthesize the existing e-government stage models so that there is a common frame of reference for researchers and practitioners in the area.

Design/methodology/approach – This research utilizes a qualitative meta-synthesis methodology to synthesize different e-government stage models. The meta-synthesis follows the steps used in meta-ethnography.

Findings – Five different e-government stage models were used in this research. We translated the stages within different models into one another and developed a new e-government stage model. The new e-government stage model has the following five stages: web presence, interaction, transaction, transformation, and e-democracy.

Research limitations/implications – The paper contributes to e-government theory development. The new five-stage model provides a synthesized conceptual framework for researchers to evaluate and understand e-government development.

Practical implications – The synthesized e-government stage model presents a road map for practitioners to follow in their e-government projects.

Originality/value – The research uses an innovative and new research methodology to synthesize the existing research. It is one of the first research in the information systems area to make use of meta-synthesis approach to consolidate the existing qualitative research. This paper is also one of the one papers to systematically come up with an e-government stage model.

Keywords Communication technologies, Government, Innovation

Paper type Research paper

1. Introduction

Since the mid-1990s, governments around the world initiated an innovation which utilized the internet and other advanced computer technologies to improve their governing process (United Nations and American Society for Public Administration, 2002; Siau and Long, 2004a, b). In the United States, 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-governments have a two fold purpose: to improve both external public service and internal organizational management. The initialization of e-government presents a way for governments across the world to provide citizens, businesses, and other governments with convenient access to government services and opportunities of collaboration as well as political participation via internet and wireless communication technology. With the rapid



development of wired and wireless technologies in recent years (Siau *et al.*, 2001; Siau and Shen, 2002; Nah *et al.*, 2005), the range of e-government has clearly expanded. These related issues have attracted increasing interest from both researchers and practitioners.

The importance and application of e-governments and the proposed e-government's strategic vision can be summarized as (White House, Office of Management and Budget, 2002):

- citizen-centered, not bureaucracy-centered;
- result-centered; and
- market-centered, actively promoting innovation.

This strategic vision includes 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). Figure 1 shows the objective and activities (i.e. potential projects or functionality) for each of the four areas.

Among the four areas, G2C and G2E involve interaction and cooperation between government and individuals, while G2B and G2G deal with the relationship between government and organizations. Moreover, G2C and G2B involve external interaction and collaboration between government and outside institutes, such as individual citizens and businesses; while G2E and G2G involve the internal interaction and cooperation between governments and their employees, as well as between governments at different levels and distributed locations.

Figure 2 shows the overall framework of e-government. E-governments can be regarded as a sophisticated and integrated portal to connect internal governing and external users. The advancement of telecommunication (Siau and Shen, 2002), internet (Erickson and Siau, 2003; Frank, 2004; Siau and Tian, 2004), and information

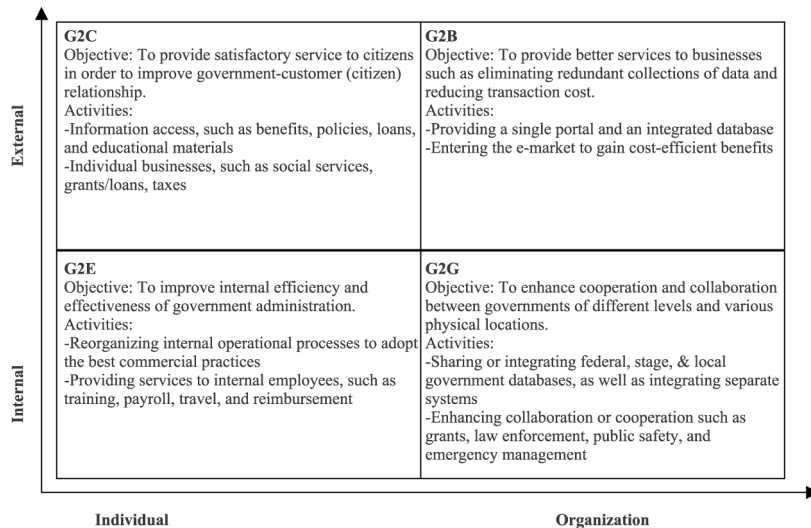


Figure 1.
Summary of e-government portfolios

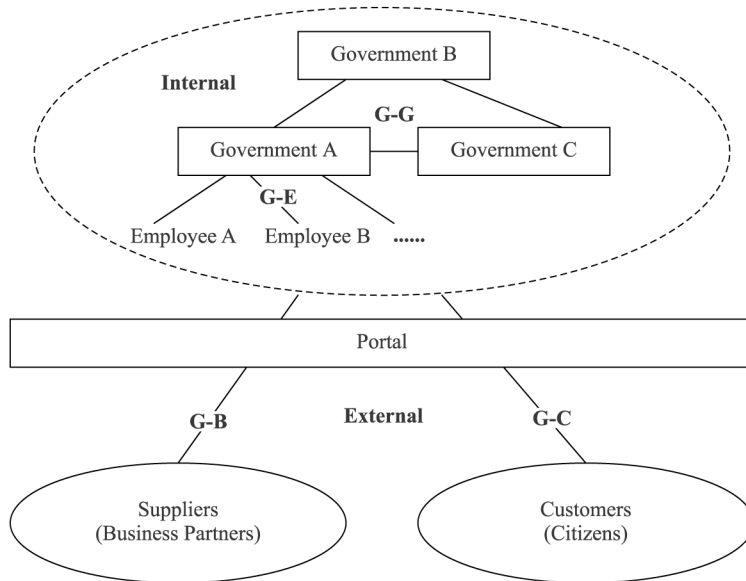


Figure 2.
e-government framework

technology (Siau, 1995; Davidrajuh, 2003; Siau, 2003) makes e-government a possibility.

However, the research on e-government is still in its infancy. There is an urgent need to study how to efficiently and effectively develop e-government systems and how to measure progress so as to establish a road map to achieve the desired service level. A number of e-government stage models have been proposed in the literature. The presence of a number of stage models poses another problem – the lack of a common framework of reference. This research uses the qualitative meta-synthesis approach to develop an e-government stage model based on the existing literature on e-government.

The rest of the paper is organized as follows. Section 2 reviews the various existing e-government stage models. Section 3 introduces the research methodology, meta-synthesis approach, utilized in this paper. Section 4 describes the meta-synthesis procedure in detail. Section 5 presents the research results – an integrated five-stage e-government stage model. Section 6 concludes the paper and proposes some future research directions.

2. E-government stage models

A few e-government stage models have been proposed. The stage models were either developed by individual researchers (e.g. Hiller and Bélanger, 2001; Layne and Lee, 2001; Moon, 2002) or proposed by institutions (e.g. United Nations and American Society for Public Administration, 2001; Baum and Di Maio, 2000; Gartner Group Deloitte and Touche, 2001). Table I shows a list of the reviewed literature.

These models are discussed in the following subsections.

Table I.
Reviewed literature on
e-government stage
model

Author and Publication time	Title
Baum and Di Maio (Gartner Group) United Nations and American Society for Public Administration (UN)	(2000) <i>Gartner's Four Phases of E-Government Model</i>
Hiller and Bélanger Deloitte & Touche	(2001) <i>Global Survey of e-government Privacy Strategies for Electronic Government</i>
Layne and Lee	(2001) The citizen as customer Developing fully functional e-government: a four stage model
Moon	(2002) The evolution of e-government among municipalities: rhetoric or reality?

2.1 Gartner's four-stage model (2000)

Gartner Group (Baum and Di Maio, 2000) proposed a four-stage model involving web presence, interaction, transaction, and transformation. The descriptions of the four stages are:

- (1) web presence – in this stage, agencies provide a web site to post basic information to public;
- (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);
- (3) transaction – in this stage, users (including customers and businesses) can complete entire transactions (e.g. license application and procurement) online; and
- (4) transformation – in this stage, governments transform the current operational processes to provide more efficient, integrated, unified, and personalized service.

2.2 UN's five-stage model (2001)

Arguing that the purpose of the e-government is to provide efficient web-based public service, the United Nations and American Society for Public Administration (2001) suggested an e-government model which consists of five stages: emerging web presence, enhanced web presence, interactive web presence, transactional web presence, and seamless web presence. These five stages are defined as follows:

- (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.

2.3 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 model as described below:

- (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; and
- (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.

2.4 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. The four stages, as discussed below, are catalogue, transaction, vertical integration, and horizontal integration (Layne and Lee, 2001).

- (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.

2.5 Hiller and Bélanger's five-stage model (2001) and Moon's five-stage model (2002)
Hiller and Bélanger (2001) identified a five-stage model – information, two-way communication, transaction, integration, and participation. Despite some minor differences in phrasing, Moon (2002) adapted Hiller and Bélanger (2001) five-stage model. Moon (2002) model consists of the following.

- (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.

In this research, we aim to “combine” these models into a synthesized model. A synthesized model provides a common framework for future research in this area and a common point of reference.

3. Meta-synthesis approach

Meta-synthesis is a research method used to produce interpretive translations, ground narratives or theories by integrating and comparing the findings or metaphors of different qualitative studies (Beck, 2002; Sandelowski *et al.*, 1997).

Analogous to meta-analysis, meta-synthesis is used to integrate multiple studies in order to produce comprehensive and interpretive findings. However, comparing to meta-analysis, which reduces quantitative studies into averages, meta-synthesis enlarges qualitative findings by evaluating the uniqueness of an individual study into a comprehensive and interpretive whole (Clemmens, 2003).

We use meta-synthesis in this research to compare, interpret, translate, and synthesize different research frameworks. Meta-synthesis generates an interpretive synthesis, rather than an aggregative summary of the findings. In contrast to the quantitative meta-analysis approach, which relies on quantitative data from literature and strict statistical approaches, meta-synthesis focuses on qualitative studies, which might not necessarily involve a large literature base (Noblit and Hare, 1988). Moreover, unlike that of meta-analysis, the meta in meta-synthesis does not refer to overall generalizations, but to translations of qualitative studies with one another, together with the researcher's profound understanding (Noblit and Hare, 1988). The translations not only maintain the uniqueness of individual interpretations but also reveal the differences between varied accounts at the same time, which enable researchers to simultaneously understand how various studies are related to each other.

The meta-synthesis approach has been used in social sciences (especially educational area), and in medical and healthcare areas. For example, Pielstick (1998) used meta-synthesis as an approach to study leadership in community colleges, and produced a profile to describe the transformational role of leadership. Clemmens (2003) employed meta-synthesis to study the phenomenon of adolescent motherhood, and concluded five metaphors to depict common characters of adolescent motherhood.

Meta-synthesis provides a systematical approach for researchers to synthesize qualitative researches and discover underlying themes and metaphors, so as to advance the current knowledge and produce a broad and comprehensive view. As a relatively new approach, meta-synthesis is not yet widely used in the management information systems area. However, we believe that it is a worthy tool to facilitate theory-building procedure through systematic synthesis.

In our study, we are interested in the e-government development process and are attempting to synthesize a model which depicts the entire procedure. Since the concept of e-government is a relatively new area and is constantly evolving, there are not many papers focusing on this topic (i.e. stage model). Moreover, most of these papers are qualitative studies without quantitative data. Therefore, meta-synthesis might be an appropriate method for us to achieve a comprehensive synthesis of e-government development based on translations between limited qualitative studies.

Our study adapts Noblit and Hare (1988) seven-step approach, which includes the following phases: getting started, deciding what is relevant to the initial interest, reading the studies, determining how the studies are related, translating the studies into one another, synthesizing translations and expressing the synthesis. We categorized the seven-step process into three major stages (introduced in detail in Section 3): selecting studies, synthesizing translations, and presenting the synthesis.

In the first stage, selecting studies, we identified the research interest and selected articles that were closely related to our initial interest. In the second stage, synthesizing translations, we first assembled all the studies together and determined how they are related to each other. We then translated the studies with each other based on a comparative approach. In addition, we synthesized the commonalities and differences between each account and brought out a new framework that not only maintains the central concept of individual interpretation but also reveals a more comprehensive theme in comparison to what each part alone implies. In the last stage, expressing the synthesis, we presented our new metaphor (i.e. five-stage model) with both diagram and words to facilitate understanding.

4. Meta-synthesis procedure

In our meta-synthesis study, we followed the seven-step meta-ethnography approach proposed by Noblit and Hare (1988).

Step 1: identifying the research question. In this step, we identified our intellectual interest as studying e-government development stages.

Step 2: identifying literature relevant to the research question. We systematically searched through related databases and the internet to identify current literature related to e-government development. Six studies focusing on e-government stage model were identified. These studies were presented from the year 2000 to 2002 and reviewed earlier in Section 2.

Step 3: reviewing the selected literature. The papers were analyzed and studied repeatedly with special attention paid to the details of the interpretation of stage model. This step is the foundation for further exploration of themes and metaphors.

Step 4: determining how the studies are related. Steps 4 and 5 are core steps during the meta-synthesis approach (Table II). The purpose of this stage is to find out the relationship between different accounts. Based on the analysis of the key concepts and metaphors of each phase of the stage model, we listed their major concepts, and their strengths and weaknesses in Table I.

The table reveals both similarities and differences between the five models. First, the five models are similar in the field of development trends. In addition, some of the stages found in one model can share similar meanings when compared to the other models. This type of overlapping occurs among all the five models. Therefore, the stages can be translated to one another though they have different names.

Second, the five models differ based on various perspectives. For example, United Nations and American Society for Public Administration's (2001) five-stage model focuses on a web-based public service. However, this is a relatively narrow perspective. E-government is far more advanced than web site design, and should include activities such as transforming the government's operations and encouraging political participation.

Deloitte and Touche's (2001) six-stage model is based on the customer service perspective, which emphasizes customer-centricity, and defines the process as an evolution of the relationship between governments and citizens. However, besides enhancing customer service, e-government should also improve internal operations such as internal efficiency and effectiveness of government administration.

Layne and Lee's (2001) four-stage model, and Hiller and Bélanger's (2001) five-stage model and Moon's (2002) five-stage model are fairly similar. The two sets of models are based on a general and integrated perspective that combines technical, organizational, and managerial feasibility. The main difference between these two sets of models is the political participation phase. The model proposed by Layne and Lee (2001) does not consider political participation, whilst the model suggested by Hiller and Bélanger (2001) and Moon (2002) argues that the political participation stage is essential to the ultimate objective of the evolution of e-government.

Gartner's (Baum and Di Maio, 2000) four-stage model is straightforward and concise. However, like the model proposed by Layne and Lee (2001), Gartner's (Baum and Di Maio, 2000) four-stage model overlooks the political participation component and does not mention the possible changes in the way of public political decision-making.

Step 5: translating the studies into one another. The purpose of this stage is to conduct a comparison of key concepts and metaphors between different studies so as to synthesize a comprehensive and integrated account. The simplest form of translation is to treat varied accounts as analogies, i.e., similarities and differences of key concepts between different studies. The matrix, as shown in Table III, shows a transactional relationship among the five models.

The matrix compares the key concepts of each stage among five models, and finds out their corresponding relationships, which indicate both similar and somewhat overlapping contents. Based on the relationships, these stages can be translated to each other. For example, when comparing the intersection of Moon's five-stage model and

Model	Stages	Strengths and weaknesses
Gartner's four-stage model (2000)	Web presence; interaction; transaction; and transformation	Concise and easy to follow Ignores the potential benefits of political changes
UN's five-stage model (2001)	Emerging (web) presence; enhanced (web) presence; interactive (web) presence; transactional (web) presence; and seamless or fully integrated (web) presence	Focuses on web-based public service (front-office) Does not consider the building of back office Ignores the potential benefits of political changes Essentially a customer-centric model
Deloitte and Touche's six-stage model (2001)	Information publishing/dissemination; "Official" Two-way transaction; multi-purpose portals; portal personalization; clustering of common services; and full integration and enterprise transaction	Ignores the re-engineering of government internal operations Ignores the potential benefits of political changes Some of the stages can be combined
Layne and Lee's (2001) four-stage model	Catalogue; transaction; vertical integration; and horizontal integration	Ignores the potential benefits of political changes Ignores the potential benefits of political changes
Hiller and Bélanger (2001) and Moon's (2002) five-stage model	Simple information dissemination; two-way communication; service and financial transaction; vertical and horizontal integration; and political participation	Good but not concise enough Political participation used in the model does not seem to adequately capture the "true" meaning of that stage

Table II.
Summary and
comparison of five
e-government models

Table III.
Relationship among five
models

	UN's five-stage model (UN)	Deloitte and Touche's six-stage model (D)	Layne and Lee's four-stage model (L)	Hiller and Bélanger's and Moon's five-stage model (M)	Gartner's four-stage model (G)
UN's five-stage model (UN)	D1 ↔ UN1 & UN2				
Deloitte's six-stage model (D)	NULL ↔ UN3				
	D2, D3 & D4 ↔ UN4				
	D5 & D6 ↔ UN5				
Layne and Lee's four-stage model (L)	L1 ↔ UN1 & UN2	L1 ↔ D1 NULL ↔ D2			
	NULL ↔ UN3	L2 ↔ D3 & D4			
	L2 ↔ UN4	L3 ↔ D5			
	L3 & L4 ↔ UN5	L4 ↔ D6			
Hiller and Bélanger's and Moon's five-stage model (M)	M1 ↔ UN1 & UN2	M1 ↔ D1			
	M2 ↔ UN3	M2 ↔ D2	M1 ↔ L1		
	M3 ↔ UN4	M3 ↔ D3 & D4	M3 ↔ L2		
	M4 ↔ UN5	M4 ↔ D5 & D6	M4 ↔ L3 & L4		
	M5 ↔ NULL	M5 ↔ NULL	M5 ↔ NULL		
Gartner's four-stage model (G)	G1 ↔ UN1 & UN2	G1 ↔ D1	G1 ↔ L1	G1 ↔ M1	
	G2 ↔ UN3	G2 ↔ D2	G2 ↔ NULL	G2 ↔ M2	
	G3 ↔ UN4	G3 ↔ D3 & D4	G3 ↔ L2	G3 ↔ M3	
	G4 ↔ UN5	G4 ↔ D5 & D6	G4 ↔ L3 & L4	G4 ↔ M4	
				NULL ↔ M5	

Notes: 1. UN, D, L, M, and G refer to UN's five-stage model, Deloitte's six-stage model, Layne and Lee's four-stage model, Hiller and Bélanger's five-stage model and Moon's five-stage model, and Gartner's four-stage model, respectively; and the number followed by the letter (i.e. UN, D, L, M, and G) represents different stages of each model. For example, D1 refers to the first stage of Deloitte's six-stage model; " ↔ " denotes the analogous relationship. For example, D1 ↔ UN1 & UN2 means that the first stage of Deloitte's six-stage model is analogous to the first versus the second stage of UN's five-stage model; NULL means that there is no corresponding stage of that model

UN's five-stage model, five corresponding relationships are discovered. In Moon's five-stage model, the first stage depicts information publishing and dissemination, in which typical public information such as governing objectives, office hours and locations are provided. Similarly, in the first two stages of UN's five-stage model, an independent government web site emerges, and general information is provided regularly. Therefore, a corresponding relationship is discovered between the first stage of Moon's five-stage model and the first two stages of UN's five-stage model. The second stage of Moon's model and the third stage of UN's model are similar. In the second stage of Moon's five-stage model, governments initiate basic interactions with users via e-mail systems and tax form downloads. The similar function is provided by the third stage of UN's five-stage model, interactive presence, in which simple interaction takes place to connect governments and users. Therefore, a corresponding relationship is identified between M2 and UN3. The same analysis procedure is applied to identify other relationships between stages of each model. These relationships are depicted in Table III.

The analyses of the matrix lead to some observations.

First, both the first two stages of UN's five-stage model emphasizes web presence, but on different levels (i.e. the first stage is lower than the second). We can combine these two into a single stage referring to the initial step of e-government development – providing general information by the government web site.

Second, the second, third and fourth stage of Deloitte's six-stage model refers to providing transactions between the governments and their customers, while both the fifth and sixth stages indicate initialization of transforming government services to a seamless and sophisticated one. It is possible to combine these two groups of stages into two single stages, respectively.

Third, both the third and fourth stages of Layne and Lee's four-stage model focuses on providing integrated service, but from two aspects – one is vertical while the other is horizontal integration. Both integrations can happen simultaneously, and do not necessarily have to be presented as separate stages.

Fourth, Gartner's four-stage model is concise and well expressed. However, it lacks a stage concerning the political participation and political democracy. UN's five-stage model, Deloitte's six-stage model, and Layne and Lee's four-stage model also overlook this essential development phase.

Step 6: synthesizing translations. In this step, we further synthesized the translation and virtually displayed the distribution of stages within each model with a diagram. Figure 3 shows a general distribution instead of accurate locations.

Different stages of each model are distributed as clusters along a five-stage model. The complexity, time-taken, and level of integration increase with each succeeding stage.

Step 7: presenting the finding. In this stage, we have organized our findings into both text and diagrams. The results are explained in detail in the following section.

5. Results and discussion

Five different e-government stage models were identified. We translated the stages within different models into one another and developed a new e-government stage model. The advantages of this model are as follows.

- (1) The relationship between phases of each model (Figure 3) indicates five separate, but interrelated clusters (i.e. stages in new model). Within each of the clusters, phases from different models share similar meanings and depict similar development levels. The synthesis allows us to develop a new model which not only covers the main ideas of previous models but also integrates these ideas into a new comprehensive stage model.
- (2) Existing models are not comprehensive enough to combine different perspectives, including technology, organization, management, and politics. For example, the Gartner's four-stage model does not consider the improvements of political development and democracy, which are the main visions of e-government. Also, United Nations and American Society for Public Administration (2001) five-stage model only focuses on web-based services, which is a relatively narrow perspective.

Therefore, we need a new model that is simple, but at the same time comprehensive enough to include the main ideas of previous models. The new model is expected to better capture the overall vision of e-government.

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

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.

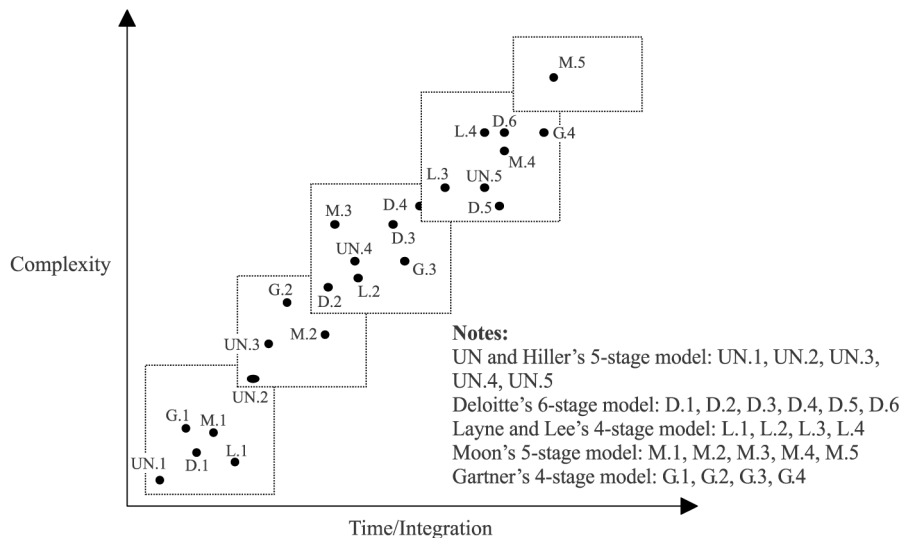


Figure 3.
Position of the stages
along the evolution

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.

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.

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.

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.

The title of the first four stages of our five-stage model is similar to that proposed by Gartner (Baum and Di Maio, 2000). However, the contents of the new model are much more comprehensive. Moreover, besides focusing on providing an integrated and personalized service, which is addressed in the Gartner’s four-stage model, our new model also emphasizes political participation and encourages democracy. These activities can be characterized by the last stage of the new model, e-democracy. In this stage, citizens and businesses are encouraged to change the original way they interact with governments. They can conveniently express their opinions and actively participate in political activities, such as online polls, surveys, conversation forums, and e-meetings.

Figure 4 shows the new synthesized five-stage model. Several points need to be mentioned here.

First, there is a big “jump” between the first three stages and the last two. The first three stages purpose to automate and digitalize the current processes, while the last two stages aim at transforming government services, reorganizing the internal operational process, and reconceptualizing the way citizens participate in government decision-making.

Second, these five stages are interrelated rather than separated from each other. Since the evolvement procedure is gradual and reciprocal, some of the stages overlap with one another to some extent. For example, the higher level of stage 2 – interaction – which provides a progressively complex interaction between governments and users, overlaps with the lower level of stage 3 – transaction.

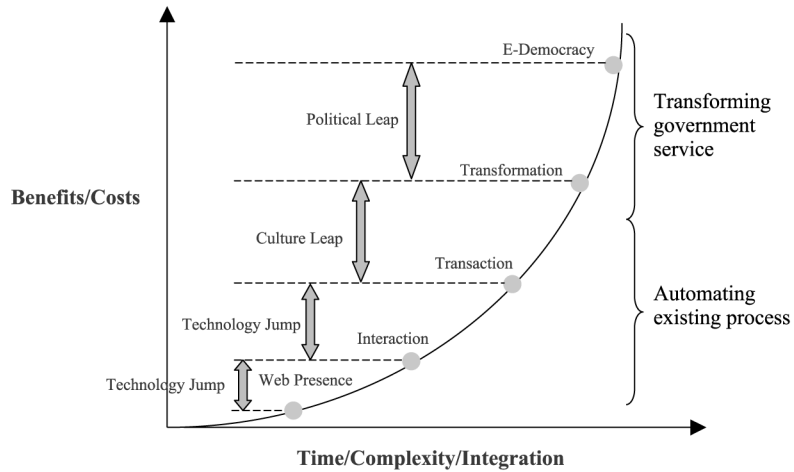


Figure 4.
Five-stage model of
e-government

Third, the five-stage model presents a development trend rather than a must-go-path. In other words, it is not necessary that every country go through the whole five stages step by step. For example, one country can transit directly from providing simple information (i.e. stage1 – web presence) to complex and complete transactions (i.e. stage3 – transaction) while skipping simple interactions (i.e. stage 2 – interaction). Since each country has its own unique circumstances and specific e-government strategy, the development procedure is not necessarily the same. The change (i.e. e-government evolvement) of some of the countries can be drastic rather than gradual. In addition, their e-government strategy can be different. Some countries focus on building a relationship between governments and businesses; therefore, they may address their attention to provide interaction and transaction. Others who focus on constructing a democracy environment within the whole nation may pay more attention on e-democracy.

Fourth, the time spending, system complexity and integration increase with the advancement of the e-government stages. At the same time, the benefits together with the costs also increase. Therefore, there is always a balance between e-government investment (such as money, time, human resource and technology) and achievement (such as user satisfaction, governing efficiency and cost-saving).

6. Conclusions and future research directions

The paper applies a qualitative meta-synthesis approach to integrate different e-government stage models into a synthesized one. Meta-synthesis is a very new approach to qualitatively synthesize studies. Based on a systematic comparison of stages between different models, the paper proposes a new and comprehensive e-government model which includes five stages – web presence, interaction, transaction, transformation, and e-democracy.

The paper contributes to e-government theory development. The new five-stage model provides a synthesized conceptual framework for researchers and practitioners to evaluate e-government development. Furthermore, the model presents a road map for practitioners to follow in their e-government projects. Also, this is one of the first

papers in information systems area that makes use of meta-synthesis to synthesize existing qualitative research. The research demonstrates how meta-synthesis can be done in the information systems area.

E-government is a new area and there are many research opportunities. A number of studies have been commissioned by the United Nations and these studies present a rich ground for mining data (Lee and Siau, 2001). With the synthesized stage model developed in this research, quantitative data or qualitative data may be collected to evaluate the e-government's development level based on the stage model. Also, researchers may be interested to investigate possible factors (e.g. information and computer technology, human development situation, economics, culture and political environment) which influence e-government development stages. Case studies or action research may be conducted in order to further understand how to successfully implement e-government systems, and why some governments are more advanced than others when it comes to e-government development.

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