Determinants of e-government maturity: Do organizational specific factors matter?

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Abstract: E-government is said to be an efficient and effective way of delivering government services to its customers. Web information accessibility and online transactional services increase transparency, openness of bureaucratic institutions and reduce cost of transactions. Global e-government surveys which portray the trend in countries’ e-government readiness and stage of e-government maturity rank developing countries at the bottom. Based on the benefits reaped from e-government and the fact that some countries can progress than others; it is evident that e-government has become a development phenomenon to researchers and policy makers. Accordingly, the basic empirical question to researchers has been on what determines e-government maturity? To answer this question, it is important first to distinguish between e-readiness and e-government maturity in order to understand the intuition behind this question. E-readiness comprises of all prerequisite necessary to implement e-government while e-government maturity refers to the actual level of e-government progress a country has attained based on websites assessment. While macro factors such as level of Gross Domestic Product, human capital and ICT (information and communication technology) infrastructure are important in determining e-government maturity at the national level; they may not necessarily explain differences of e-government maturity among government agencies within the same country. In other words, why there are differences in e-government maturity among governmental agencies even in those countries which are ranked at the top. In this paper authors argue that organizational specific factors play a vital role in determining the stage of organizational e-government maturity. To accentuate the argument, authors provide one of the possible frameworks and respective propositions to indicate the influence of organizational specific characteristics on e-government maturity.

Key words: e-government maturity; high customer contact; front office operation

1. Introduction

The role played by e-government in development is widespread ranging from many faces of social, political and economic arenas. Specific benefits from e-government may include efficiency and effectiveness, minimizing corruption, reducing transaction costs, emancipating the poor and marginalized communities, which can increase democracy and accountability, and therefore can promote economic development (Misuraca, 2006; Backus, 2001; Reffat, 2003; UN & ASPA, 2002; Heeks, 2002). There are many indices which portray the global trend in the country’s e-government readiness and stage of e-government maturity. Regardless of methods from which these indices are constructed, the general rankings of countries based on these indices

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place developing countries at the bottom. From this perspective, it is clear that e-government is a development phenomenon that has attracted many researchers. Since each country is struggling to create an e-society for reaping the benefits of e-government, the practical relevant question to some researchers and policy makers has been “what determines e-government maturity”? An emphasis on the distinction between e-readiness and e-government maturity is necessary in order to understand the intuition of this question.

E-readiness comprises of all prerequisite necessary to implement e-government while e-government maturity refers to the actual level of e-government progress that a country has attained based on websites assessment. E-readiness measures the extent to which a society is prepared to reap the opportunities from the information and communication technologies (Ojo, et al., 2007). In answering this question, some researchers such as Singh, et al. (2007) provide macro factors as determinants of e-government maturity. While these factors are important for determining e-government maturity at the national level, they do not explain differences of e-government maturity among government agencies within the same country. In other words, the relevant practical question is why there are differences in e-government maturity among governmental organizations (agencies) even in those countries which are ranked at the top. This paper argues in favour of the organizational specific factors as an alternative to answer the above question, and provides one of the possible frameworks to answer this question through a particular organizational characteristic.

The next part of the paper is organized as follows. Firstly a short literature review on e-government maturity is presented. Secondly, a section on the determinants of e-government maturity follows with an alternative possible conceptual framework to extend the existing literature on the determinants of e-government maturity. The last section contains an implication for future research.

2. E-government maturity

2.1 Stages of e-government maturity models

The term maturity signals the state of growth as a continuous process (Andersen & Henriksen, 2006; Oyomno, 1998). Trying to understand the implementation process, commitment of efforts and resources in development of e-government in various countries, several authors have distinguished several phases of e-government implementation based on web measure index. The phases provide an indication of the e-government maturity that a country has already attained. Thus, maturity models in this regard represent a stage of growth from lower stage to higher stage. The value or utility derived from e-services increases from lower phases to higher phases. Therefore, stages represent the level of e-government development based on the content and services delivery available via official websites (UN & ASPA, 2002). Likewise the technological and organizational complexity increase as e-government grows from lower phases to higher phases (Layne & Lee, 2001; Gartner, 2000). This suggests the fact that though higher stages of e-government may be desirable, they are difficult to attain. There is no agreement yet in the literature regarding the number of phases in which e-government should go through from its immaturity to maturity stage (Irani, et al., 2006).

In the literature, the e-government maturity models are found to comprise mainly of between three and six stages (Kaaya, 2004). The general characteristics somehow look similar for some authors in the way they attribute various stages although terminologies may differ. For example, e-government maturity model proposed by Chandler and Emanuels (2002) and cited by Irani, et al. (2006) consists of a transaction stage characterized by services that enable transactions of value between citizens and government. Similarly, Layne and Lee (2001) consist a transaction
stage characterized as enabling citizens to interact with their governments electronically. However, differences exist in the way authors position these stages in the maturity models. The former authors for example, position the transaction phase at stage three while the latter authors position the transaction phase at level two. Some of the various stages of e-government maturity models proposed by several authors are as follows (see Table 1): Three stages (Howard, 2001), four stages (Layne & Lee, 2001), five stages (UN & ASPA, 2002), Deloitte research cited in Silcock (2001) uses six stages, Gartner (2000) in Backus (2001) uses four stages and Netchaeva (2002) five stages.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Perception</th>
<th>Reference</th>
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<tbody>
<tr>
<td>Stage 1: Publish</td>
<td>1. Information about activities of government available online.</td>
<td>Howard (2001)</td>
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<td>Stage 2: Interact</td>
<td>2. Enables citizens to have simple interactions with their governments such as sending e-mail or “chat rooms”.</td>
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<td>Stage 3: Transact</td>
<td>3. Provides citizens with full benefits from transactions over the internet, such as applying for programmes and services, purchasing licenses and permits.</td>
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<tr>
<td>Stage 2: Interaction</td>
<td>2. Simple interaction between citizens and governments.</td>
<td></td>
</tr>
<tr>
<td>Stage 3: Transaction</td>
<td>3. Services that enable transactions of value between citizens and government.</td>
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<tr>
<td>Stage 4: Integration</td>
<td>4. Integration of services across the agencies and departments of government.</td>
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<tr>
<td>Stage 1: Cataloguing</td>
<td>1. Creating websites and making government information and services available online.</td>
<td>Layne and Lee (2001)</td>
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<tr>
<td>Stage 2: Transaction</td>
<td>2. Enables citizens to interact with their governments electronically.</td>
<td></td>
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<tr>
<td>Stage 3: Vertical integration</td>
<td>3. Focusses on integrating disparate at different levels.</td>
<td></td>
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<tr>
<td>Stage 4: Horizontal integration</td>
<td>4. Focusses on integration of government services for different functions horizontally.</td>
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<tr>
<td>Stage 2: Enhanced</td>
<td>2. Updating information regularly.</td>
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<td>Stage 3: Interactive</td>
<td>3. Provides users with reasonable levels of interaction enabling them to download forms and</td>
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<tr>
<td>Stage 4: Transactional</td>
<td>4. Enables users to complete transactions such as obtaining visas, licences, passports, birth and death records, etc. online safely and securely.</td>
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<tr>
<td>Stage 5: Seamless or fully integrated</td>
<td>5. Provides services across administrative and departmental lines with the highest level of integration.</td>
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<tr>
<td>Stage 2: Official’ two-way transactions</td>
<td>2. Enables customers to have electronic interaction with government services such as renewing television licences and paying parking tickets.</td>
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<td>Stage 3: Multi-purpose portals</td>
<td>3. Enables customers to obtain government services and information from a single point.</td>
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<td>Stage 4: Portal personalization</td>
<td>4. Provide customers with opportunities to customize portals according to their need.</td>
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<tr>
<td>Stage 5: Clustering of common services</td>
<td>5. With portals becoming better, government departments will disappear where government will seek to gather common services to hurry the process of delivery.</td>
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<tr>
<td>Stage 6: Full integration and enterprise transformation</td>
<td>6. Government departments will disappear others will appear; some departments will keep the same names but become entirely different internally.</td>
<td></td>
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**2.2 Relationship between e-government maturity, value of services and organizational complexity**

It is important to note that these phases are not dependent during implementation and one phase doesn’t need to be completed for the other to begin (CDT, 2002). Conceptually, there are no observable lines of demarcation among phases but just characteristics attributed to each phase. As noted before, there is no consensus among authors regarding the number of stages e-government maturity model should go through. There is however at least some agreements in the literature about the following:

1. The value (benefits) of e-services increases from lower to higher stages of maturity models;
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(2) Technological and organizational complexity increases from lower to higher stages of maturity models. Figure 1 and Figure 2 below summarize the above relationships as e-government implementation evolves over time.

Figure 1  E-government maturity stage
Source: Gartner (2000).

Figure 2  E-government maturity curve
Source: Adopted and modified from Howard (2001).

3. Determinants of e-government maturity

3.1 Country-specific macro factors
As discussed in the previous section, albeit the higher stages of e-government being desirable, the way to reach there isn’t smooth. By the year 2002 for example, that only 9% of 190 UN member states surveyed were found to offer services at the transaction stage while for most countries e-government implementation programs were still at the informational stage (UN & ASPA, 2002). The similar recent survey report indicates that still very
few countries are categorized in the transactional stage of information and service delivery (UN, 2008). These surveys however are based on country assessment and the results are important for comparative purposes. In conjunction to these assessments, an interesting issue has been on the factors necessary to position various countries or organizations at different stages of e-government.

Responding to this, various authors have argued on macro factors as determinants of e-government. UN for example, reports a correlation among a country’s social, political and economic conditions with its level of e-government development (UN & ASPA, 2002). On the other hand, influence of factors such as ICT infrastructure and human capital have been reported in the UN reports. So, the explanation is that countries with high level of these drivers are likely to be categorized at higher stages of e-government maturity. E-government demands plethora of resources in various investments such as information and communication technologies (ICT) which poor countries do not afford (Singh, et al., 2007). Empirically, few studies have been conducted on the relationships between e-government maturity stage and various drivers indicated above. A study by Singh, et al. (2007) use the demand side factors such as human capital and supply side factors such as ICT infrastructure and governance to search for evidence of the relationship. The authors investigated further this relationship by using ICT infrastructure, governance and human capital as moderating variables on GDP which triggers effect on e-government maturity.

While these macro factors are important as drivers of e-government, they do not explain variations found within countries. Experience shows that there are large variations within countries regarding e-government maturity. In both fast performers and laggards, the differences exist between government agencies. In other words, in top ranked countries there still exist differences in the way government agencies develop e-government programs. Similarly, in bottom ranked countries, there exist government agencies at higher stages of e-government maturity than others. Hence another explanation on such variations within countries is needed when studying drivers of e-government. An alternative explanation is not meant to substitute the country level macro factors but as a supplementary approach.

3.2 Organizational specific factors

We argue that organizational specific factors may explain such variations within countries. Together with country specific factors described above, organizational specific factors provide an explanation why some agencies progress than others. The influence of organizational specific factors has been considered in some previous studies. In Oyomno’s approach of e-government capability maturity assessment, he considers the influence of factors such as ICT infrastructure development, human resource capability, leadership and management at the organizational level. The author argues for example that the degree to which a government agency possesses or accesses human and intellectual capability determines the maturity of its e-government capability (Oyomno, 1998). Likewise, other authors (Norris & Moon, 2005; Reddick, 2004) studied the influence of organizational factors, such as website age, size of the organization, manager’s professionalism and location of an organization on e-government.

Organizational specific factors are numerous, they may include for example managers commitment to prioritize e-government projects, availability of an ICT department with an independent annual budget for e-government development, degree and frequency of customer contacts, organizational e-government operational plan. While opening the door for this idea to be debatable, we present a framework to facilitate our thoughts. The framework is based on the following facts:

(1) Implementation of e-government is a continuous process until the maturity model is completed;
(2) Implementation is constrained by resources because e-government projects require abundant resources.

Therefore, some government organizations are given more priority than others due to their very nature as implementation progress over time. We categorize organizations according to the three types of customers they
serve. First, degree and frequency of customer contacts; secondly, flow of the services provided between G2C and G2B and presence of international customer focus strategy.

3.2.1 High customer contact organizations

Organizations with high and frequent customer contacts are more likely to be found at higher stages of e-government maturity relative to low customer contact organizations due to high pressure from the demand of the public (Reddick, 2004). These organizations have high customer contacts that necessitate a need for increasing online services of the front office operations (Walley, 1994). Front-office operations consist of e-government services aiming at fulfilling the public’s needs by simplifying interaction with various online services. High customer contact organizations may include for example all organizations in the sectors defined in the UN e-government surveys including education, health, employment and social welfare. From this tenet, we formulate the first proposition in the following manner:

P1: High customer contact organizations are more likely to be found into a higher stage of e-government maturity than low customer contact organizations.

3.2.2 Specialized government to business organization (G2B)

On the other hand, we propose that organizations offering services marked as e-business are very likely to be at higher stages of e-government due their importance on economic growth and development. In other words, organizations offering e-government services and information channeled to business sector (G2B) are more likely to develop advanced web services relative to organizations offering service to citizens (G2C). Business sector is a key sector for growth of the economy and development of other service sectors, such as health and education. The G2B services target a wide array of members of the business society including local investors, foreign investors and citizens who interact with the government on business purpose.

Oyummo distinguishes e-business activities into two forms. The first is transaction, which include services such as licensing, permits, procurement, and revenue collection. The second is promotional and facilitative which include service related to trade, tourism, investment and campaigns (Oyummo, 1998). In some instances, tax revenue authorities may be given first priority because of their easiness in evaluating viability of e-government projects using financial models such as net present value (Kertesz, 2003). Some previous studies on e-government have cited revenue offices as best example of e-government. For example UN & ASPA (2002) cited tax offices in Norway, German, Spain, Ireland, USA and Finland, Kearns (2004) cited UK self assessment tax return. Kertesz (2003) cited e-tax in Romania, Soete and Weehuizen (2003) cited Dutch inland revenue tax office. Therefore, from the logic given above, we generate the second proposition as follows:

P2: Organizations specialized to offer services to businesses (G2B) are more likely to be found at higher stage of e-government maturity than organizations specialized to offer services to citizens (G2C).

3.2.3 International customer focus organizations

Lastly, we include international customer focus as a relevant driver to e-government. The argument is based on the fact that e-government offers an opportunity to contact foreign customers globally at any time. E-government bypass all possible barriers to internationalize the services and shrink geographical distances. For example, agencies established to attract foreign investments especially in emerging economies are likely to use e-marketing to reach foreign investors. Such organizations may be obliged to offer services at the transaction stage where foreign customers can download, file, submit and track their applications of permits and licenses. Similarly, investors can interact with government agencies for all matters pertaining entry procedures. Hence, the following proposition is formulated:
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P3: Organizations with international focus strategies are more likely to be found at higher stage of e-government maturity than organizations with only domestic strategies.

Based on the above explanations, we provide a conceptual framework combining three aspects representing some organizational specific characteristics which might have influence on e-government maturity. In general, organizations classified as high customer contacts, international customer focus and with e-service flows to business sector (G2B) are likely to be characterized at higher stages of e-government maturity. The Figure 3 below summarizes the relationship we could expect.

4. Conclusion

E-government is a new area that requires more researches to develop theories. One of the research issues to be addressed is searching for explanation on the drivers of e-government. Both country specific factors and organizational specific factors need be studied on their influence on e-government at different levels. There is a need to consider country studies rather than cross-country studies, especially when the purpose is to establish explanations on causal relationship. Longitudinal studies are important for e-government studies (Norris & Moon, 2005), especially when the purpose is to monitor progress over time.

References:

(to be continued on Page 16)