E-business Adoption Process by SMEs in Saudi Arabia

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Abstract
Despite the popularity of e-business systems and applications, few studies have attempted to understand the factors affecting adoption process for these systems. Adoption of e-business systems among Small and Medium Sized Enterprises (SMEs) has enormous potentials. However, much of the current e-business literature to date concentrates on adoption concerns in general; little research has so far been reported to investigate the factors which affecting the adoption of e-business system by SMEs in Saudi Arabia. This paper aims to develop conceptual framework to understand the factors affecting e-business system adoption in Saudi SMEs.

Keyword: E-business, Adoption, SMEs, Saudi Arabia

1.0 Introduction
SMEs in Saudi Arabia play an important role in its economy. They contribute 28% of total national economic activity and employ about 40% of all employees in Saudi Arabia. Due to rapid globalization, SMEs in Saudi Arabia are however encountering greater intensity in competition. Moreover, computer and Internet literacy is gradually increasing in Saudi Arabia (Shaikh 2009). Hence, the expectations on the part of the Saudi population in general and large industries in particular for SMEs to deliver products and services in more innovative manners are increasing. In response, Saudi SMEs are expected to consider the adoption of innovative e-business systems. However, successful adoption of these technologies require the existence of a range of facilitating factors (Dubelaar, Sohal et al. 2005). Existing e-business literature (e.g. Wen and Chen, 2010 ) identifies a rich set of factors. Regrettably, it is not known whether these factors (which were identified and assessed for the SMEs operating in Western nations and some developed Asian countries) apply equally to SMEs in Saudi Arabia due to the following reasons:

First, Saudi Arabia(located in the Gulf region) is characterized by large power distance (PD score: 80) and uncertainty avoidance (UA score: 68) which are the predominant characteristics for this region (Hofstede 2010). This implies that at an organizational level, a clear distinction is likely to be maintained between owner and operational levels of management. These characteristics are quite different from those found in developed nations. Second, another characteristic of Saudi Arabia is that the employment context within Saudi SMEs is strongly dominated by two distinct types of expatriates. One group involves knowledgeable and educated managers and another group includes less educated labour force employed from various developing Asian/African countries. Therefore, the culture and education level of employees among Saudi SMEs is quite heterogeneous. Hence, unlike other developed nations, the employee characteristics of Saudi SMEs are quite different due to the
involvement of three distinct groups of people. It is argued that the attitude of these varied groups of people may in turn affect e-business adoption process in Saudi SMEs.

Third, various scholars (e.g. Vega, Chiasson et al., 2008) urge e-business community to broaden their investigation agenda by addressing the influence of government assistance programs to understand the uptake of e-business systems particularly within a SME context. Nonetheless, few scholars have attempted to actually examine how the existence of such programs may influence the broader adoption process of e-business systems among SMEs for an emerging economy like Saudi Arabia. It is not however known how the government’s support programs contribute in promoting the uptake of e-business systems among SMEs. Fourth, it is not clear for Saudi context how over time they conceive, decide, implement and then use e-business systems, and what issues, challenges, and facilitators may affect their e-business adoption process. Much of the existing e-business literature on SMEs focuses on understanding adoption decision making or implementation which represents a particular (though important) stage of broader e-business adoption process. In contrast, relatively less emphasis is given in the scholarly literature about understanding e-business adoption as a temporal process involving multiple stages. This in turn calls for further research to examine e-business adoption process among Saudi SMEs. Finally, it is not known whether the factors affecting various stages of e-business systems adoption process differ between manufacturing and service industry. It is argued that industry characteristics of Saudi SMEs may have an effect on how various factors are perceived important by Saudi SMEs.

2.0 Literature Analysis

2.1 E-business adoption by SMEs

Several studies on e-business technologies adoption by SMEs are reported in the literature. A sample of these studies is shown in Table 1. It appears that considerable research attention was given to understand e-business adoption by SMEs in USA, Australia, European Union and developed Asian nations (e.g. Hong Kong, Malaysia, Singapore).

<table>
<thead>
<tr>
<th>Countries</th>
<th>Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>Johnston, et al. (2007); Wen and Chen (2010)</td>
</tr>
<tr>
<td>European Union</td>
<td>Simpson and Docherty (2004); Scupola, (2009); Oliveira and Martins (2010)</td>
</tr>
<tr>
<td>Asian nations</td>
<td>Sarosa and Underwood (2005); Tan, et al. (2010)</td>
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</tbody>
</table>

However, a few scholars (e.g. Sait, et al., 2004 and Alwabel and Zairi, 2005) have examined e-business adoption for Saudi Context. Sait, et al. (2004) have identified the factors which influence e-business adoption in Saudi Arabia. For instance, lack of skills, security concern, privacy and competition. Whereas, Alwabel and Zairi (2005) found the most important factors which influence e-business adoption in Saudi Arabia are competition intensity, supplier/customer pressure, regulatory issues, value chain process and, top management support & commitment. Although they are useful, their focus is not on SME context. Hence, further research is needed.
The studies shown in Table 1 have identified a range of factors which affect SMEs decision to adopt e-business technologies. These factors are selected from a range of IT adoption theories. It is also noted that the focus of these studies is on SME adoption decision making process only and they did not consider other stages of broader adoption process. This is the gap that addressed by the proposed conceptual framework presented in this paper.

### 2.2 IT Adoption Theories in Macro Level

Existing studies on e-business adoption among SMEs have made reference to both macro and micro level of IT adoption theories. According to Carr (2003) micro level theory means adoption of IT and practices at individual institutions and macro means adoption of IT and practices at organizational institutions.

A large part of past IT adoption studies involves the construction of micro-level theory which explains an individual’s intention to adopt an IT application. This study however would focus on IT adoption theories in macro level. Various theories have been formulated to evaluate e-business introduction (see Table 2). These theories are summarized in Table 2 and were used to identify factors affecting e-business adoption by SMEs. These theories have been used to examine IT adoption within organization at different levels such as functional units and entire organizations (Jeyaraj, et al., 2006). In addition, numerous innovation have been examined by using these theories, for instance, electronic data exchange, telecommunications technologies and computer-aided software engineering tools (Jeyaraj, et al., 2006).

In fact, these theories employed in different IT adoption stages such as decision to adopt (e.g. Grover and Ramanlal, 1999), intention to adopt (e.g. Davis, 1999) intention to use (e.g. Fygenson, 2006), adoption (e.g. Simpson and Docherty, 2004) and diffusion (e.g. Panzano, et al., 2004). Additional, these theories have been used to examine the adoption in specific stages of IT adoption, for instance, initiation or implementation (e.g. Cooper and Zmud, 1990). IT adoption has several stages which identified by several scholars, such as Kwon and Zmud (1987) proposed 5 stages which include: adoption, adaptation, acceptance, routinization and, infusion, while Rogers (1995) proposed two stages initiation and implementation.

### Table 2: Theories used in organizational IT adoption research

<table>
<thead>
<tr>
<th>Theory</th>
<th>Authors</th>
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<tbody>
<tr>
<td>Diffusion/Implementation Model</td>
<td>Kwon and Zmud (1987)</td>
</tr>
<tr>
<td>Innovation Diffusion Theory</td>
<td>Rogers (1995)</td>
</tr>
<tr>
<td>Tri-Core Model</td>
<td>Swanson (1994)</td>
</tr>
<tr>
<td>Technology Organization Environment(TOE) Framework</td>
<td>Tornatzky and Fleischer (1990)</td>
</tr>
<tr>
<td>DELONE AND MCLEAN IS Success Model</td>
<td>Delone and McLean (2003)</td>
</tr>
<tr>
<td>Transaction cost theory/ Transaction cost economic</td>
<td>Oliver Williamson (1985)</td>
</tr>
<tr>
<td>Diffusion of Innovation Theory in IS</td>
<td>Moore and Benbasat (1991)</td>
</tr>
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</table>

Furthermore, these theories offer numerous classes of independent factors which include environment characteristics, organizational characteristics and innovation characteristics (Jeyaraj, et al., 2006). The factors which indentified by these classes are as the following: a) environment characteristics which include External pressure (e.g. Iacovou, et al., 1995) and competition (e.g. Grover and Ramanlal, 1999), b) organizational characteristics which include top management support, championship (e.g. Grover and Ramanlal, 1999) organization structure and centralization and formulation (Grover and Ramanlal, 1999).
innovation characteristics which include relative advantage, complexity, observability, and trialability (e.g. Rogers, 1995).

**3.0 A proposed Research Model of e-business adoption by Saudi SMEs**

A review of the broader IT and e-business stage model adoption theory indicates the existence of two distinct views. One group of scholars apply stage model concepts from the diffusion of innovation (DOI) perspective to study a particular IT/IS/e-business application adoption process over a period of time within a single organization. Another group of scholars apply stage model concept to examine the evolutionary maturity of IT/IS/e-business applications within an organization. This research is focused on examine factors affecting e-business system adoption process from DOI perspective. However, the analysis process for the IT/e-business stage model adoption literature has delivered the following research model (see Figure 1) which will be evaluated by domain experts and then will be empirically tested by conducting interviews with owners and managers of Saudi SMEs.
**Common Factors**
- Cost
- Management Support
- Uncertainty in business environment
- External pressure
- Relative advantage
- Government support

**Stage Factors**
- Need for technical expertise
- Information availability
- Knowledgeable employee attitude toward technology

**Stage Factors**
- Complexity
- Compatibility
- Communication
- E-business law
- Security concerns
- High competence in IS
- Organisational readiness
- Owner attitude toward technology
- Knowledgeable employee attitude toward technology
- Company’s awareness of need for change

**Stage Factors**
- Training
- High competence in IS
- Information availability
- Company’s awareness of need for change
- Lower level employee attitude toward technology

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Time order

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Figure 1: Research Model
3.0 Conclusion

E-business adoption among Saudi SMEs is relatively unexplored area which needs to be better understood. Hence, government policy creators, e-business researchers, IT vendors and SME’s management would be interested in the findings of this proposed study.

4.0 References


