Chapter 8
An Information Communication Technology Adoption Model for Small and Medium Sized Enterprises

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ABSTRACT

Despite the increased number of SME adopters of information communication technology (ICT) for their business, there are limited studies that address the factors affecting SME’s adoption decision. Especially, a theoretical perspective on E-business adoption model for SMEs is required to better understand the SME’s complex adoption decision process and, in turn, to provide a realistic means of creating guidelines for other SME’s to consider when making their adoption decision. Thus, the goal of this chapter is three-fold: i) to review key literature of the factors affecting SME’s adoption decision and then summarize major determinants of key dimensions with definition and literature sources, ii) to propose a theoretical framework of e-business adoption for SMEs, namely an OBTG (Organizational, Business, Technological, Governmental) e-business adoption model for SMEs, and finally iii) to provide insightful discussions on the driving factors and barriers of the SMEs’ e-business adoption decision.

INTRODUCTION

Small and medium size enterprises (SMEs)1 play significant roles in the economy of many countries by providing employment opportunities and supporting large-scale firms. According to the literature (Chau & Jim, 2002; KIMI, 2002; OECD, 1997; Towler, 2002), SMEs comprise 99.7%, 92%, 90%, 98% and 99.7% of the enterprises in the US, Singapore, the UK, Hong Kong, and the Republic of Korea (hereafter Korea) respectively. However, only about 25% and 26% of SMEs in the US and Korea respectively are using the Internet for business (MIC, 2002; Nua_ Internet_Surveys, 2001). In light of the fact that Korea has the world’s fifth largest Internet market and the highest Internet penetration in the world (ITU, 2003), the percentage of SMEs in other countries using the Internet for business is perhaps lower than 26%. Moreover, the penetration rate of other Information

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and Communication Technology (ICT) is lower than that of Internet use.

In the SME sector, the rate of ICT adoption, which is also described as computerization, E-commerce, Internet business, etc. is lower than that of big companies. This is mainly because of their characteristic “resource-poverty,” which includes a lack of finances, ICT experts, time and planning (Blili & Raymond, 1993; Paraskevas & Buhalis, 2002; Soh, Mah, Gan, Chew, & Reid, 1997). This phenomenon is also seen in other countries (OECD, 2003). For these reasons, governments of some countries have made an effort to initiate a wider diffusion of ICT for the SME sector. The Korean Government, for example, has taken a direct and indirect role to lead the ICT diffusion for SME since 2001 (KIMI, 2003). Under the government’s plan, 3 Telcos and about 130 application service providers (ASPs) including IT ventures, which are developing their own business models of application programs and ASP solutions (i.e., the ICT service platforms in this study) are composed of a consortium to promote the adoption of ICT and to create business models suitable for SMEs. The biggest benefit of the construction of the consortium is to provide a service platform at an extremely low cost with the government support.

Despite the increased number of SME adopters of ICT for their business, there are limited studies that address the factors affecting SME’s adoption decision. Especially, a theoretical perspective on E-business adoption model for SMEs is required to understand better the SME’s complex adoption decision and, in turn, to provide a realistic means of guidelines for other SME’s for their adoption decision. Thus, the goal of this chapter is three-fold: i) to review key literature of the factors affecting SME’s adoption decision and then summarize, with definition and literature sources, major determinants of key dimensions, ii) to propose a theoretical framework of e-business adoption, namely an OBTG (Organizational, Business, Technological, Governmental) e-business adoption model for SMEs, and finally iii) to provide an insightful discussion on the driving factors and barriers of the e-business adoption decision by SMEs.

The reminder of this chapter is organized as follows. The next section briefly discusses SMEs in the Korean environment as a background. The third session reviews key SME studies on various dimensions affecting the SME’s ICT adoption decision and summarizes major determinants of each dimension with definition and literature sources. Then the section four proposes a theoretical framework for SMEs’ CIT adoption decision. Shortly after the description of the cases that are collected by the National Computerization Agency, one of the executive agencies of the South Korean government, section five presents the case analysis, results, findings, discussion to validate the proposed framework. Lastly, the chapter is concluded with limitation and future directions.

**BACKGROUND: SMES IN THE KOREAN ENVIRONMENT**

South Korea (Korea hereafter) was noted as one of the Asia Tigers, and successfully maintained a high level of GDP growth throughout the first half of the 1990’s while the same time keeping inflation at around 4% and unemployment below 3% (Hsiao & Hsiao, 2001). For its rapid economic development over recent decades, Korea joined the OECD in 1996. Until the mid-1990s, Korea’s economic growth was based primarily on traditional manufacturing industries such as shipbuilding and automobile industries. Since the early 1990s, the Korean government has continually expressed its intention to centralize policy coordination and has invested in the IT industry based on the view that IT will help the Korean economy as a driving force of economic growth.

The Korean government defines SMEs in terms of the number of employees and the amount of sales. The upper limit for an SME in manufacturing, mining, construction and transportation is