



Chapter IV

**Conceptualizing the SMEs’
Assimilation of Internet-
Based Technologies**

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ABSTRACT

This chapter conceptualizes a model for the assimilation of Internet-based technologies in small and medium enterprises (SMEs). The research examines the factors influencing the assimilation of Internet-based technologies and the penetration of these technologies in SMEs. Internet-based technologies are complex organizational technologies. The model uses the learning related scale, related knowledge and diversity, together with several control variables like host size, IT size, specialization and education. Several external factors, such as influence of customers, suppliers, vendors and competitors, that have been suggested in studies of SMEs have also been included to explain the assimilation and diffusion of innovation. The results of an exploratory survey are presented and future research is discussed.

INTRODUCTION

E-commerce is impacting the way the small and medium sized firms conduct business. They are increasingly being subjected to competition from firms located in different parts of the world. General Electric (GE) has had a big rise in bids from Chinese manufacturers to supply to U.S. plants. GE has, therefore, developed a new capacity to handle these suppliers (*The Economist*, 2000). Thus, e-commerce is exploiting the combined power of the Internet and information technology to fundamentally transform key business strategies and processes (Jones, 2000). This transformation has commenced. For example, the percentage of new Internet Business-to-Business (B2B) projects by small- and medium- sized firms in supply chain and procurement will rise from less than 25% in 1999 to more than 75% in 2003 (*The Economist*, 2000). In Denmark, Netherlands and Australia, Internet penetration is more than 50% among medium-sized businesses (*The Economist*, 2000). These facts show the speed at which change is taking place in small- and medium-sized firms. Therefore, it is pertinent to investigate the impact of e-commerce on small and medium firms.

The research project will examine the factors influencing the assimilation of Internet- based technologies and the penetration of these technologies in small-and medium-sized manufacturers.

Other questions that will be investigated are:

- How are Internet-based technologies impacting small-and medium-sized manufacturers?
- What elements or components of Internet-based technologies are they using and for what purpose?
- What factors have played a major role in their move to adopting these technologies?

BACKGROUND

The Internet Economy now directly supports 3.1 million workers. It grew by 62% in 1999 to \$523.9 billion and by 58% in 2000 to an estimated \$830 billion. The Internet-related revenue growth was 15 times the growth rate for the U.S. economy (Center for Research in Electronic Commerce, University of Texas Austin, 2001). Since 2001, the Internet Economy has slowed down but it still is an important part of the economy.

Small companies constitute a surprisingly high 90% of all U.S. exporters and account for about 30% of the total value of U.S. exports (US Alliance for Trade Expansion, Washington). There is considerable empirical evidence that the employment share of traditionally large-business-dominated industries is declining while that of traditionally small-business-dominated industries is increasing (Cordes, Hertzfeld

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