

# Chapter 30

## Adoption of e-Commerce by Canadian SMEs: Defining Organizational, Environmental and Innovation Characteristics

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### INTRODUCTION

While online sales have experienced high growth rates, e-commerce adoption rates by Canadian SMEs have not kept pace. Canadian SMEs continue to lag behind the US and the EU in adopting e-commerce. Recently, a survey of SMEs' adoption of e-commerce was conducted to determine reasons for this low adoption rate (Sparling, 2007; Sparling, Cater-Steel, & Toleman, 2007). Constructs used in the survey focussed on three contexts: organizational, external environmental and innovation. The study found significant factors that differentiated adopters and non-adopters of e-commerce included technological opportunism and readiness, owner experience with computers, support within the organization,

relative advantage and compatibility. This chapter focuses on the definitions of the variables in the organizational context.

Adoption and diffusion theories have been applied to the adoption of technological innovation, such as EDI and e-commerce. Many studies have combined elements of Rogers' (1995) theory of diffusion with other factors, such as organizational and external environmental factors, when examining technological innovation adoption. These hybrid models were necessary in order to capture the additional complexity and variance in the phenomena of technology adoption (Ordanini 2006). Organizational characteristics that were found in many of the studies include business size, business category, technological readiness, owner characteristics and support by top management. External environmental factors included competitive pressure, institutional

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pressure, and government pressure. No consistent set of factors affecting the adoption of e-commerce has been found to date. Many technological innovation adoption studies, with the exception of the e-commerce adoption studies, concentrated on large organizations. SMEs are the cornerstone of the Canadian economy - 99 percent of all established businesses in Canada have fewer than 200 employees (Industry Canada 2006).

## **REVIEW OF E-COMMERCE ADOPTION LITERATURE**

This chapter uses Rogers' (1995) definition of adoption: adoption is the decision to make full use of an innovation as the best course of action available, while rejection is the decision to not adopt. Rogers (1995) and many subsequent researchers, including Kendall et al. (2001) and Saythe and Beal (2001), have shown that perceptions of the attributes of an innovation affect its rate of adoption. Rogers (1995) identified five perceived attributes of innovations that affect their rate of adoption: relative advantage, degree of compatibility of the innovation, complexity, trialability and observability. He found these five characteristics to be the main determinants explaining 49 to 87 percent of the variance in the rate of adoption (Rogers 1995).

There is a growing body of research into information systems innovation adoption. Some of the information systems studied have been interorganisational systems (IOS), such as EDI. Henriksen (2002) defines an interorganisational system as an information system that is shared by two or more companies. EDI and e-commerce can be considered interorganisational systems in that information crosses organization boundaries. Both EDI and e-commerce can affect the supply chain, trading partners, technology providers and governing bodies. The relationships can be very complex, creating the need for many variables when examining the adoption of e-commerce.

Ling (2001) argues that diffusion of innovation theory is relevant to the study of e-commerce due to the technical components of e-commerce, but that e-commerce has unique features, such as interorganisational elements, which distinguish it from other types of innovations. The technological innovation literature has not produced a consistent set of factors that affect organizational adoption.

For the purpose of this chapter, small- to medium-sized enterprises (SMEs) are defined as businesses with fewer than 200 employees. Different measures have been used to measure the size of organizations, including the number of employees, value of assets, revenue generated, and type of ownership. The definition of SMEs varies greatly when examining research studies or industry statistics, making comparisons difficult. For example, Industry Canada defines a goods producing firm as small if it has fewer than 100 employees, while the service producing firms' cut-off point is 50 employees. Above that size, and up to 500 employees, a firm is considered medium-sized. The OECD and US Government also use under 500 employees to define a SME (Cater-Steel & Grist 2006). The term "SME" (for small and medium enterprise) is used to refer to all these components of the economy together.

Many e-commerce adoption studies to date have focused on SMEs, realizing the importance of small business in the global economy and the potential benefits for SMEs of adoption of e-commerce. Two separate studies, one in Singapore and another in Australia, examined the low adoption rates of e-commerce by SMEs by comparing adopters with non-adopters using Rogers' innovation diffusion theory (1995). Kendall et al. (2001) found that adopters and non-adopters differed in terms of perceptions of relative advantage, compatibility, and trialability. Sathye and Beal (2001) found differences based on perceived relative advantage, compatibility, and organization size. Archer, Wang and Kang (2008) found very few differences between the opinions and perceptions

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