SMEs have been an object of academic study for decades. Despite their small size, they are considered to be the cornerstone of national economic development and a significant contributor to the economic wealth and prosperity of a country. The European Commission views SMEs as the backbone of the European economy (Europa, 2003). Similarly, the Australian government recognises that SMEs are a “powerhouse” of economic potential, whose employees account for almost five million members of the workforce (NOIE, 2002) making them a major source of jobs.

In recent years, SMEs have faced a number of challenges. With the establishment of Free Trade Agreements between countries worldwide, SMEs are increasingly competing in global markets. This has been made possible by several developments most notably in the area of information technology. With the advent of electronic commerce (e-commerce), SMEs found themselves in position to enter new markets, expand their organisation, and utilise technology for competitive advantage. Indeed, apart from academic research confirming this development, anecdotal evidence from SME owners suggests that the Internet and e-commerce have stretched their business horizons beyond expectations. Numerous SME owners have reported receiving orders for their products and services from all over the world, despite deciding to use technology to improve services to their local market.

E-commerce involves the application of Web-based information technologies toward automating business processes, transactions, and workflows, and buying and selling information, products, and services using computer networks (Kalakota & Whinston, 1997). E-commerce technology has the potential to become a major source of competitive advantage to SMEs because it is a cost effective way of reaching customers globally and competing on par with larger counterparts. Governments worldwide have recognised this and created funding schemes and initiatives to facilitate e-commerce adoption in SMEs. These are evident in highly developed countries in particular where government organisations are investing millions in programs and incentives to promote IT and e-commerce adoption in SMEs.

Regional areas have come under particular scrutiny for these programs in order to encourage economic growth. Regional areas are geographic locations that are outside the greater
boundaries of metropolitan areas and large cities. In recent years, there has been a significant demographic trend of migration from regional to metropolitan areas, which has placed a burden on social systems in large cities and raised questions about the sustainability of both smaller townships (where the population is dwindling) and cities (which are increasingly overcrowded). Inevitably, this has led to initiatives to reverse the trend with government funding being channelled to regional areas in an attempt to promote their economic growth. A significant amount of this funding has been invested in developing IT infrastructure, particularly for SMEs, which dominate the regional landscape. However, we still do not have reliable data about the success of these initiatives. The exploratory study presented in this book aims to open the door for further research in this field by providing empirical evidence about the use of e-commerce in SMEs located in regional areas.

Research Objectives

The key aim of the study presented in this book is to determine how SMEs located in regional areas are going about e-commerce adoption. The study was undertaken over a period of three years in three highly developed nations all belonging to the OECD and with comparable per capita GDPs and levels of Internet penetration. These included Sweden, Australia, and the USA. In each country, one regional area was surveyed—Varmland (Sweden), Illawarra (Australia), and Salt Lake City (USA).

In each location, we examined SMEs that were e-commerce adopters as well as non-adopters. For adopters, we considered the following aspects:

- The reasons why they had adopted e-commerce (we have termed these “criteria”)
- The advantages they gained from e-commerce adoption (we have termed these “benefits”)
- The difficulties they experienced following e-commerce adoption (we have termed these “disadvantages”)

For the non-adopters, we were interested in two aspects of e-commerce adoption:

- Their reasons for not using e-commerce (termed “barriers”)
- The potential benefits that would be an incentive to adopt e-commerce in the future (these were termed “criteria” and mirror the criteria used by adopters)

In addition to the previous, we also collected data about the SMEs in order to develop a profile of the respondents. Some of the information we collected included the size of the business (defined in terms of the number of employees), the age of the business (in years), the business sector, the market focus (i.e., where the majority of the customers come from), the gender and educational level of the CEO, whether they were members of an alliance, and others. We use the term “business characteristics” to refer to this information. In addition to examining the aspects of e-commerce, we have also examined the correlations between
business characteristics and e-commerce criteria, barriers, benefits, and disadvantages, in an attempt to answer questions such as the following:

- Are SMEs with a male or female CEO more likely to adopt e-commerce to increase their sales?
- Are SMEs, which are between 3 and 5 years old, more likely to experience reduced costs as a result of e-commerce adoption?
- Are those SMEs that have not adopted e-commerce because it doesn’t suit their products/services more likely to have between 10 and 19 employees?

A list of specific research goals is included in Chapter II. However, the broad objectives of the research can be summarised as follows:

- To determine the levels of e-commerce adoption in regional SMEs located in developed countries.
- To define the main reasons for e-commerce adoption (and non-adoption) in regional SMEs.
- The understand the benefits and disadvantages of e-commerce adoption in regional SMEs.
- To determine the effects of business characteristics such as the gender and education of the CEO on e-commerce adoption.
- To examine the effects of belonging to an alliance on e-commerce adoption.
- To discuss the implications of the research findings for government initiatives in regional areas.

**Methodology**

A survey instrument was used in all three locations to collect data. Depending on the likely response rate, different modes of data collection were implemented. A total of 589 responses were received and used to undertake different statistical analyses in order to address the previous research objectives. The amount of data collected was substantial and this book presents only a portion of the total data collected and analysed over a four-year period in the three locations previously described. Chapter II provides a detailed explanation of the research methodology used.

**Outcomes and Implications**

The primary outcome of this research is empirical evidence of e-commerce adoption in regional SMEs. Eleven chapters of this book (Chapters III to XIII) provide detailed ac-
counts of every aspect of e-commerce adoption, including the effects of various business characteristics. For simplicity, each chapter is treated as separate and can be read as a stand-alone chapter.

This book is primarily aimed at academics and researchers and has been presented accordingly. However, the results of the statistical analyses have an inherent practical value and to allow both government organisations and e-commerce providers to benefit from the findings, we have provided a summary at the end of each chapter highlighting the key issues arising as well as the implications of the results. The book is rich in data and those practitioners who are familiar with statistical techniques may refer to a specific table to examine the results of a specific analysis if required. As such, this book can be used as a reference and the wealth of information contained within it can be used to focus on certain aspects of e-commerce adoption. Therefore, this book is a piece of empirical research and a reference at the same time.

One of the key outcomes of the research is the finding that SMEs are not homogeneous and that there are very few similarities even between businesses located in relatively comparable areas. The differences between SMEs with fewer and more employees, for example, are significant when it comes to e-commerce adoption. As are the differences between SMEs located in Sweden and Australia.

The main message of this study is that SMEs can not be treated as a single entity. Any government program that aims to promote technology must take into account a range of factors and provide tailored solutions for different categories of SMEs. This book contains a plethora of findings, which aims to assist with this customised approach. Similarly, e-commerce software developers will benefit from the findings by designing and developing custom made solutions for different SMEs.

**Limitations**

It should be noted that the study presented here has several limitations. The choice of variables selected for the study is somewhat problematic because of the complex nature of e-commerce, which changes over time. Furthermore, according to Sohal and Ng (1998), the views expressed in the surveys are of a single individual from the responding organisation and only those interested in the study are likely to complete and return the survey. However, previous empirical studies (Raymond, 2001) have demonstrated the survey methodology to be a valid instrument for this type of research. It should be noted that the results presented in the study are the perceptions and beliefs of the individuals who completed the survey. When asked to rate e-commerce benefits, for example, the respondents are providing their personal views and it is not always possible to attribute the various benefits and problems in the organisation to e-commerce specifically.

The number of respondents in Australia that had adopted e-commerce was small, reducing the generalisability of certain findings. Due to a low response rate to certain questions, there was insufficient data from some of the U.S. surveys to undertake the full range of statistical analyses. Although statistically valid, some results are derived from a small sample size. As such, they may be a function of the response rate and should be treated with caution.
Finally, this is a quantitative study, and further qualitative research is required to gain a better understanding of the key issues.

We are not providing the reader with infallible results and findings that can be taken on board and used in practice. Our study provides a “snap shot” of e-commerce adoption issues in regional areas in three countries and the differences between these. Technology progresses at a rapid pace and that is always one of the pitfalls of doing research in the area. However, to overcome this we have focused on the organisational issues of e-commerce adoption, as opposed to the technical issues. From this point of view, it can be argued that the findings presented in this book are probably still valid today even though the last survey was carried out in 2004.

Structure of the Book

The following thirteen chapters provide the context to our study and contain the results of the research. They are organised as follows:

Chapter I provides an overview of SMEs and electronic commerce as a background to the research. A review of the literature is presented in order to situate the present study and demonstrate its significance and the knowledge gap it aims to fill.

Chapter II describes the research methodology in detail, including the specific research goals, data collection (survey) instrument, and the statistical analyses undertaken.

Chapter III consists of general findings from the study. It presents a profile of the respondents and examines the interactions between different business characteristics. E-commerce adoption at the broadest level (i.e., the number of adopters and non-adopters) is examined briefly.

Chapter IV commences a detailed treatment of e-commerce by examining e-commerce adoption criteria. First, we look at the associations between various business characteristics (i.e., business size, age, sector, etc.) and various e-commerce adoption criteria to determine which types of businesses are more likely to adopt e-commerce for certain reasons. This is followed by a factor analysis to identify the groupings of e-commerce criteria, which will tell us the overarching reasons for adoption in each of the three locations. The three subsequent chapters follow the same format.

Chapter V presents the results of the analyses concerning e-commerce barriers, including the associations between business characteristics and specific e-commerce barriers and a factor analysis to understand the main reasons for lack of e-commerce adoption.

Chapter VI is concerned with the benefits of e-commerce adoption. Several business characteristics were found to be associated with certain benefits and different groupings of benefits were found in each of the three locations.

Chapter VII examines the final aspect of e-commerce—disadvantages. Each disadvantage is analysed in relation to business characteristics and to identify groupings, as in the previous chapters.

Chapter VIII provides the results of analysing the relationship between alliance membership and e-commerce adoption. As mentioned previously, alliances have been promoted as
a catalyst for e-commerce adoption, among other things. This chapter presents empirical evidence of how this trend is developing in regional areas.

**Chapter IX** looks at the effects of gender on e-commerce adoption. Previous research has found strong correlations between the gender of the CEO and IT adoption. We examine whether this is applicable to e-commerce adoption in regional SMEs.

**Chapter X** mirrors Chapter IX, but looks at the effects of education on e-commerce adoption. Our aim is to determine to what extent the education level of the CEO is associated with e-commerce adoption.

**Chapter XI** only examines e-commerce adopters and specifically the relationship between adoption criteria and adoption benefits/disadvantages. This chapter answers two very important questions:

- Did SMEs that adopted e-commerce for specific reasons experience the matching benefits? (i.e., if an SME adopted e-commerce to increase sales, did this benefit materialise?)
- What disadvantages did SMEs that had adopted e-commerce for a specific reason experience? (i.e., if an SME adopted e-commerce to reduce costs did it experience increased costs as a result.)

**Chapter XII** is similar to Chapter XI in that it examines only non-adopters, and specifically the relationship between current adoption barriers and future adoption criteria. The chapter aims to determine which barriers are associated with which criteria.

**Chapter XIII** zooms out from the detailed level of analysis in the previous chapter to make a broad comparison of the results across the three locations and determine the differences between criteria, barriers, benefits, and disadvantages.

**Chapter XIV** provides a summary of the key findings and the main conclusions of the study. It also discusses the implications of the results and highlights the areas where action is required in order to promote e-commerce adoption by SMEs located in regional areas.

**References**


