

**Electronic Commerce**

**and**

**Small and Medium Business Enterprises**

**By**

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Certificate of Authorship of Thesis

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for an award of any other degree or diploma of a university or other institute of higher learning, except where due acknowledgement is made in the text.

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## Abstract

The aim of this research was to discover the issues influencing the adoption of e-commerce by small and medium business enterprises (SMEs) in the Australian Capital Territory (ACT). The demand aspect of the theory of diffusion of innovation enabled the formulation of a number of research propositions which formed the focus for this research. Seventy-five randomly-selected SMEs within the ACT were interviewed. Of these seventy five, fifty had adopted e-commerce and twenty-five had not.

Findings complemented results from other studies, but also added to them. Factors from the demand aspect of the theory of time, resources (personnel, financial, technological), business organisation, size, return on investment, push by outside agencies or clients, and communication channels were found to be of little importance. Of greater importance were characteristics of the SME operators themselves (such as their innovativeness, their relative youth and educational level), the size of their business, the number of years it had been operating, and marketing issues. A prime consideration was that of attaining and maintaining a competitive edge over their competitors. Security and privacy issues were of little consideration prior to the adoption process, but became of much greater importance once SMEs had adopted e-commerce.

Some things discovered by this research that have not appeared in the reporting of other studies included:

- The importance of tertiary education for the primary decision-makers in the organisation;
- The role banks played in the adoption process;
- The high cost and difficulty of compliance with government regulations, especially regarding the employment of staff; and
- The lack of use of specifically established communication channels, set up by government bodies or associated industry organisations to educate and inform SMEs about the potential and process of e-commerce.

Results of this research have implications for a large number of associated stakeholders – government, educational institutions, and trade, industry and professional associations – and as such deserve to be widely disseminated.

## Acknowledgements

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‘Why do you want to do it [your doctorate] at your age?’, knowing that as I was already retired I would not use it professionally.

I told him I would prefer to be 80 years old with it than 80 without it. And had it not been for his constant encouragement and understanding, I could have been 80 without it. He has ever been unstinting of his time, ever patient, encouraging, and extremely helpful at all times. Thank you Peter for assisting me on this journey. I could not have done it without your guidance and help.

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# **Chapter One**

## **Introduction**

## **1.1 Background to the study**

For decades commerce has been based on the concept of customers coming to bricks-and-mortar establishments to conduct their business. They have placed their orders, received the products, paid for them and taken them with them. Alternatively, they have placed their orders, had them delivered, been invoiced, and then paid for them. Regardless of when orders were paid for and delivered, customers still needed to visit the bricks-and-mortar establishments to conduct business transactions. Advent of the telephone meant that orders could be placed from a distance, but all business transactions still involved traditional bricks-and-mortar establishments.

One of the most powerful tools for change in business and ways in which it is conducted has been the internet. Originally an electronic tool for the rapid sharing of information between scientists in the military and in academia, the internet and private networks allowed organisations to share information inexpensively across and between organisations. Use of the internet shows no signs of slowing. Indeed, the opposite seems to be true. In the four years to 1999 the number of internet users grew from an estimated 3 to 50 million, and this number continues to grow almost exponentially (PriceWaterhouseCoopers 1999: 7, 27). Estimates of continued growth vary widely, but all forecasters agree that it is difficult to estimate with any degree of accuracy just how many internet users there are at any one time. All agree, however, that the number of internet users continues to increase rapidly (OECD 1997: 22-26; Poon 1998a: 88-90; Kalakota and Whinston 1997: 58; Tenorio 2002: 2). Concomitant with the growth in internet users is a similar growth in the number of web sites offered. Mansfield (2005), the largest email marketer in Australia, estimates there are currently one billion web sites internationally, with the number increasing daily.

As the internet became more pervasive, other types of organisations moved in to use it for their own purposes. Businesses found that they could profitably use the internet in a number of ways to enhance their business. Thus was born electronic commerce (or what almost universally has been called e-commerce). Use of the internet for e-commerce provides a powerful new infrastructure - a universal information system for handling business transactions of the economy. No longer are businesses confined to bricks-and-mortar establishments. They can operate as virtual establishments - owning no premises, holding no inventory - merely sourcing goods and supplying them. They no longer rely on customers visiting their physical premises. Now they need their customers to visit

their online sites where orders can be placed and deliveries can be made without face-to-face contact between customers and businesses. Many businesses have now chosen to have an online presence as a natural extension of their physical premises. Indeed, Amazon.com has found that it needed to extend its business from purely an online one to having physical premises so that it could meet the demands of customers more rapidly rather than relying on other suppliers (*IT Conversations: Jeff Bezos - Web 2.0* 2005; Mills 2005).

E-commerce is a completely new model for commerce; consequently it requires a fundamental reassessment of the way in which it operates, especially of the tax, legal, risk and compliance, trade and customer protection issues that were taken for granted in older business models. Under the old traditional model, companies could take years to become global players. They could take their time in becoming established as successful businesses. They had to build a presence in the nations in which they were conducting business, and while doing so they learned the rules in those countries. Today any business conducting business on the internet is, by definition, global. As a result companies do not have the time to adjust to learn the different rules and regulations in different countries before becoming subject to them (OECD 1997: 16-17; Sudweeks and Romm 1999: 1). This has resulted in a whole new paradigm shift in the way in which business is conducted and the issues facing it.

The development of e-commerce in Australia has been part of the world-wide phenomenon that has seen major and significant changes in the way businesses operate, in how consumers effect their purchases, and in how governments function. It is transforming the way companies world-wide do business (Booz Allen Hamilton 1999; Information Industries and Online Taskforce 1998: 1-7). Companies are under increasing pressure to adopt e-commerce if they are to remain competitive (Henderson 2002: 33; Keen 1999: 48; Muecke 2000). The phenomenon could not have occurred without the technological push provided by developments in information and communication technologies (ICTs). E-commerce could not have burgeoned the way it has without the technology, but the technology has been only part of the total picture. Of even greater significance has been the social and cultural environment in which the technology exists. Without acceptance by society at large, it would not have happened. Electronic commerce affects and impinges on many sectors of the community – governments (particularly State and Commonwealth), educational institutions, trade,

industry and professional organisations, financial institutions, infrastructure providers, technology consultants, consumers and the businesses themselves. Associated with each of these are a number of contingent issues affecting business use of e-commerce. These issues have affected how small and medium business enterprises (SMEs) view e-commerce; they have affected SMEs' adoption of e-commerce. If these issues were recognised and confronted future strategies could be planned to enhance the successful adoption of e-commerce by SMEs.

[Acronyms, abbreviations and short definitions of terms used throughout the thesis are included in *Appendix One*.]

This assumes, of course, that the adoption of e-commerce is 'a good thing' for SMEs generally (Alston 2001). But is it? Government is certainly propounding that it is. For example, Alston, Minister for the Department of Communications, Information Technology and the Arts (DCITA) until the reshuffle of government ministries in late 2003, said:

It is vital electronic commerce be fully embraced by Australian business to maximise new opportunities, achieve cost savings and improve future competitiveness (NOIE 1999b: 1).

He postulated that the prosperity of SMEs in particular is being threatened by globalisation of the economy and by the dismantling of trade barriers. One solution to this threat is the conversion to e-commerce (Alston and Macfarlane 2001). Alston also said that:

E-commerce can be expected to bring significant productivity gains and higher economic growth resulting from the more efficient allocation of resources throughout the economy (Alston 2001a).

In response to Alston's assertion that SMEs would benefit greatly from adopting e-commerce, *Getting Business Online*, a publication produced by the Department of Industry, Science and Tourism (DIST), aimed to accelerate the move by businesses to adopt e-commerce (Alston 2001; Information Industries and Online Taskforce 1998: 1-11; Muecke 2000; NOIE 2002). Poon and Swatman in a study of Australian SMEs (1999a) reported that adoption of e-commerce by SMEs is important to the generation of critical mass for online commerce with governments in all the major countries setting up initiatives to ensure that SMEs adopt. Almost 100% of large corporations in Australia use the internet as an integral part of their business, but SMEs have been slower to do so (ABS 2000a: 5). Were SMEs to adopt e-commerce, it appears they would gain significantly. Benefits would flow, not only to the SMEs themselves, but to

the economy generally. Alston, in his position as Minister for DCITA, had actively encouraged government initiatives that would help SMEs to use the internet as an integral part of their business. This government department, along with a division within the department, the National Office for the Information Economy (NOIE), had been given the oversight of providing assistance to encourage SMEs to adopt e-commerce and to facilitate the process. [This department on 8 April 2004 was replaced by the Australian Government Information Management Office (AGIMO) (2004).] The web sites of both agencies contain a wealth of information and advice for SMEs to use. Despite these initiatives, and despite an almost universal acceptance that e-commerce will be the norm in the future, SMEs have still shown a reluctance to adopt e-commerce (Lawrence 1997: 587-588; Muecke 2000; NOIE 1999: 3, 1999a; 2002f). Perhaps this reluctance in face of the risks involved could be construed as SMEs being prudent.

## **1.2 The problem to be researched**

In common with other innovations the adoption (or diffusion) of e-commerce depends on a number of pre-requisites if it is to succeed. SMEs seem, for the most part, to be cognisant of the possible benefits to be achieved from adopting e-commerce, but they also recognise that there are significant barriers or inhibitors that influence their adoption, and may even deter them altogether. SMEs have been relatively slow to take up opportunities offered by online technologies, and thus there is a gap between the value flowing to the national economy from large enterprises using the internet and that coming from SMEs. For example,

The level of awareness and understanding about e-commerce and its general benefits to business is increasing amongst SMEs. Many businesses use the internet daily in their business operations. However, many businesses, especially small businesses, are resistant to actively engaging in e-commerce, specifically buying and selling over the internet. This resistance reflects a limited appreciation of the benefits to business of moving online as well as concerns about the cost and process of doing so (AUse.NET 2000: 11).

Adopters need to be able to see that the adoption of e-commerce will offer them significant benefits over the traditional bricks-and-mortar style of commerce. They need to be assured that the barriers or disincentives are out-weighed by the incentives or potential benefits. There is a range of issues, both internal and external to the organisation, that impinge upon the successful adoption process. In the adoption of any innovation, there are characteristics of the innovation process that impact upon the

decision to adopt. These include characteristics of the organisation, resource implications, and external influences from other stake-holders such as government, financial institutions and associated agencies. These issues are explored more thoroughly in *Chapter Three Section 3.4 The demand aspect of diffusion* which considers the theory of innovation diffusion as it applies to the adoption of e-commerce.

This research sought to identify the range of issues surrounding SMEs in their potential adoption of electronic commerce with the aim of recommending strategies that would enhance the level of successful adoption. When the researcher first became interested in this subject, much of the literature on the adoption or diffusion of e-commerce was in the popular press. There appeared to have been little academic research on the adoption of the internet by business (Teo et al. 1997-98). A large proportion of research initially was focussed on the process of adoption, and on the potential benefits and disincentives to be achieved from adopting. It is only in the past several years that there has been more serious research investigating more than the process. Doctoral studies such as those by Marsh (2001), Poon (1998a), Sheng (2001) and Zhang (1999) have led the way in studying use of the internet.

Despite this change in direction of research, there still seemed to be a dearth of understanding behind the issues and reasons underpinning SMEs' adoption of e-commerce. What instigated them to adopt? What held them back? What deterred them from adopting? Why have they been so reluctant to engage in a form of commerce that appears to offer considerable benefits? Were they aware of the potential benefits to be gained from adopting? What have been the issues impacting upon them in their considerations? What factors enabled their adoption or acted as barriers to it? Were there steps that other interested stakeholders could take to facilitate the whole process for them? What issues impinged upon them once they had adopted? If these issues were identified would it be possible to provide guidelines that would facilitate the adoption of e-commerce by SMEs? These questions and others of a like nature prompted this research, which sought to investigate two main research questions:

What were the enabling factors and barriers that impacted upon SMEs in the ACT when they considered adopting e-commerce?

*and*

Once SMEs had adopted e-commerce, what were the issues that impinged upon them in their continuing operations?

In investigation of the two research questions, e-commerce was treated as a new means of conducting business – as an innovation. Any research that investigates the adoption of this innovation should logically be placed in the theoretical context of innovation diffusion. However, for reasons discussed in greater detail in *Chapter Three Section 3.4 The demand aspect of diffusion*, this researcher chose not to add to the multitudinous volume of existing literature on traditional innovation diffusion (for example, Clayton 1997, Rogers 1983, 1995; Rogers and Shoemaker 1971, and Solo and Rogers 1972), but chose to place it in the demand aspect of that theory as espoused by Brown (1981). The demand aspect of the theory sought to explain the adoption of the innovation according to a number of demand characteristics. When this research was placed in the context of the demand aspect of innovation diffusion theory, a number of research propositions emerged. These are named and discussed in *Chapter Three Section 3.5 Application of the theory*.

By basing the research on the theory of innovation diffusion, and investigating the characteristics of the innovation process as elements of the demand aspect of the innovation process, it will allow the development of strategies and recommendations for the successful adoption of e-commerce by SMEs.

### **1.3 Research methodology**

Answers to the two research questions and research propositions could be obtained only from SMEs themselves. Various means of data collection were considered and abandoned before settling on the methodology used – telephone interviews with 25 non-adopters of e-commerce, and in-depth face-to-face interviews with 50 adopters of e-commerce. The issues of sample selection and of methodology used are discussed in greater depth in *Chapter 4 Section 4.7.2 Selection of sample and Section 4.8 Method of data collection*.

### **1.4 Significance of the study**

The research was significant for a number of reasons:

- Its timing was strategic. The period over which data were collected coincided with an increase in the growth of opportunities for online commerce. A local corporation – TransACT (See *Chapter Two Section 2.6 Technical Infrastructure*

*required to facilitate e-commerce* for more on TransACT) – had begun to roll out broadband cable throughout the Australian Capital Territory (ACT) so that not only households but businesses would be able to connect to broadband services (TransACT Communications Pty. Ltd. 2000).

- By being able to incorporate broadband services into their online facilities and thus enhance their commercial operations SMEs would or should benefit from the roll out.
- In efforts to establish a revenue base that freed it from total reliance on fund allocations from the Commonwealth Government, the ACT government has been very active in its encouragement of developing business opportunities for SMEs. BusinessACT, the business development arm of the ACT Government, provides business support and assistance to Canberra businesses and is committed to helping business grow locally, nationally and internationally. The ACT Government has established a number of local agencies to assist SMEs in their search for information, provided funds to assist SMEs seeking to commercialise innovative business ideas through its Knowledge Fund, and created a number of business incubators to make it easier for SMEs to afford the costs of establishment of business premises (ACT Government 2002; Brake 2003).
- Research studies have moved away from merely reporting what SMEs did in the ways in which they conducted online commerce to more investigative studies of understanding the issues underpinning their adoption of e-commerce and seeking solutions to challenges and issues facing them.
- SMEs continue to be important contributors to the economy of the nation, not only in the numbers of people they employ, but in what they contribute to the gross domestic product (GDP) as a whole.

## **1.5 Structure of this thesis**

To facilitate the reporting of this research, the thesis has been structured as follows:

## **Chapter One – Introduction**

Chapter One is the introduction to the thesis. This chapter provides a brief background to the study. It also introduces the research questions, the research strategy, and justifications for carrying out this study.

## **Chapter Two – SMEs and e-commerce**

Chapter Two, the review of literature relating to SMEs and e-commerce, provides a theoretical foundation for the study by reviewing the most significant relevant literature that impacts on the research questions. It reports on the importance of e-commerce and of SMEs to the economy as a whole. It identifies the key issues relating to the adoption of e-commerce by SMEs. Although there has been a plethora of popular literature on e-commerce, there is also a growing body of research literature related to the topic (Ngai and Wat 2002). The literature review is not exhaustive, but is representative of what is relevant to the study. As much as possible research literature has been cited, but refereed and professional journal literature is also referenced. Literature relating to the theoretical setting and to research methodology are included in Chapters Three and Four respectively.

## **Chapter Three – Theoretical setting**

Chapter Three sets the theoretical scene underpinning the study. As e-commerce is an innovation and the adoption of e-commerce is the topic under research, the theory of innovation diffusion is used. A number of the established texts on innovation diffusion such as Brown (1981) and Rogers (1995) list many studies that fit into the spatial and temporal model of adoption. However, as there has been an abundance of studies looking at the spatial and temporal adoption of innovation, this study did not add to that abundance, but instead considered the demand aspect of adoption. The demand aspect of innovation adoption theory treats the adoption process from the point of view of demand for an innovation and the benefits and challenges it can provide to the adopter. Reading of the research literature more widely indicated other factors that related to the demand aspect of adoption which should be included as issues impinging upon SMEs and e-commerce generally.

#### **Chapter Four – Research methodology**

Chapter Four describes the methodology used in the study. It describes the population used, difficulties in obtaining a sample, and the data collection methods used. It also briefly explains the methods of data analysis. The sample consists of two parts – those SMEs that have not adopted e-commerce, and those that have. The sample of non-adopters of e-commerce acted as a quasi control group so that inferences made from the study can be applied to the whole population of SMEs and not just to the adopters. Had the study not included non-adopters as well as adopters the findings would have been applicable only to the adopter SMEs.

#### **Chapter Five - Analysis of responses from non-adopters of e-commerce**

Chapter Five reports the findings and analysis of the responses from telephone interviews with 25 SMEs that have not adopted e-commerce. Many of the questions asked of adopters were not relevant to non-adopters so were not asked. Consequently, data from the non-adopters were much briefer than from the adopters.

#### **Chapter Six – Analysis of responses from adopters of e-commerce**

Chapter Six reports the findings and analysis of the responses from in-depth focussed interviews with 50 SMEs that had adopted e-commerce. The responses are analysed in a setting that reflects other research findings, but focuses on these results.

#### **Chapter Seven – Analysis of results**

This Chapter draws together the results of Chapters Five and Six in considering the demand aspect of the theory of innovation diffusion. It specifically considers the research propositions that had been developed from the theory and looks at how studying SMEs in the ACT either supported or failed to support them.

## **Chapter Eight – Conclusion**

Chapter Eight provides the conclusions of this study. It includes lessons learned from the process of adoption, and discusses contributions unique to the theory that emanated from the research. It also includes recommendations for various stakeholders such as educational institutions, government and providers of information and communication (ICT) channels. Suggestions for further research arising from the study are also included.

## **Bibliography and Appendixes**

These eight chapters are followed by the bibliography of references cited in each of Chapters Two, Three and Four. A number of Appendixes have been included to supplement and elucidate contents of the chapters. For instance, Appendix One lists Acronyms, abbreviations and short definitions of terms used throughout the thesis while Appendix Eleven re-presents all information given in graphic form in Chapters Five and Six as data tables.

## **1.6 Chapter summary**

This chapter has provided a brief overview of the study. It has placed the research into the appropriate setting. It has briefly explained why it was appropriate to use adoption of innovation theory, and described the development of the research methodology used. The following three chapters will discuss some of the relevant literature of the various sections.

## **Chapter Two SMEs and e-commerce**

## 2.1 Introduction

In seeking to identify the issues that would assist in planning future strategy aimed at enhancing the level of adoption of e-commerce by SMEs, this study investigated the issues relating to SMEs in their adoption of e-commerce. Pearce, in his study of the diffusion of internet technology in the workplace, pointed out that despite the changes it has brought about, there are relatively few research studies that have sought to identify the factors that influence the diffusion of internet technology – either in society in general or in an organisational setting (1998: 5). When this research began in 2000 there appeared to be a similar lack of rigorous studies investigating issues associated with the diffusion of e-commerce by SMEs. This research attempted to help fill this gap and identify the issues that influenced this diffusion. In studying these issues, it was necessary to consider those that exist within the organisation as well as those that are external to it. Internal issues included:

- Management of the organisation;
- Its size (number of employees);
- The type of business;
- Decision-makers and their attributes;
- The manner in which they found out about e-commerce;
- Innovativeness of the decision-makers;
- The stages or levels of adoption of e-commerce;
- Perceived benefits and inhibitors to adoption;
- The environment in which businesses operated;
- Triggers that pushed them into adopting; and
- Challenges experienced during the adoption process.

Issues in the external environment included:

- Availability of infrastructure;
- Government policy;
- Legislation and support initiatives;
- Attitudes of consumers, suppliers, and other business partners;
- Push by other agencies;
- Role of financial institutions;
- The role of trade, industry and professional organisations; and
- Possible deterrents to the adoption process.

This research also considered why e-commerce was ‘a good thing’ to be adopted, and looked at the significance of SMEs in general. Perhaps most importantly, it also looked at what changes SMEs would make if they were to repeat the process of adoption, and what advice they would offer to others considering adoption. From investigating all of these factors it has been possible to identify the issues that would assist in planning future strategy aimed at enhancing the level of adoption by SMEs. This literature review discusses these factors.

Despite the lack of rigorous research literature investigating issues relating to the adoption of e-commerce, there is a vast corpus of literature relating to e-commerce in general. Today so many people are writing about various aspects of e-commerce that the field is flooded. Over the past four or five years there has been a change in the direction taken by the research literature. At first it began with what different businesses were doing, before moving into basic research investigating the advantages and disadvantages of adopting e-commerce (Burroughs 1999; Poon 1998a; Raisinghani 1997). Now researchers are looking beyond this, seeking to identify means by which businesses can develop strategies to enhance their profitability by the use of e-commerce. Because the corpus of literature has been so extensive, it has been necessary to select only that which was directly relevant to this research. Therefore, within the various sections of the literature review, it was not intended to provide a full review of the literature on any individual aspect. The literature review was intended to give an overall picture of a complex, multi-faceted and constantly changing and evolving phenomenon.

Material selected for this literature review has come, for the most part, from research literature, reviewed journals or professional literature. As much of the literature comes from electronic sources without pagination, it has not always been possible to cite page numbers. The literature review is comprehensive, but it is not exhaustive. The major researchers in the field, especially in Australia, are, however, included.

For convenience of identification, the literature review is in three chapters. This chapter looks at SMEs and e-commerce in particular, while the literature relating to the theory underpinning the research is discussed in the next chapter, *Chapter Three Adoption of innovation*, and that relating to the research methodology used is discussed in *Chapter Four Research methodology and data collection*. This chapter

looks first at the significance of SMEs to the economy, then it looks at e-commerce. It first considers the significance of e-commerce, then the perceived advantages and disadvantages of adopting it. It discusses characteristics of SMEs as organizations, the infrastructure required to facilitate e-commerce, and external influences on the adoption process such as government initiatives, the role of financial institutions, and pressure from other agencies. Finally it considers the stages or levels of adoption of e-commerce.

## 2.2 Significance of SMEs to the economy

SMEs, identified in Australia as those businesses employing fewer than 100 employees (See *Chapter Four* for further discussion on defining SMEs), contribute significantly to the economies of many countries of the developed world (Rao et al. 2003: 12-13). For instance, in the United Kingdom, SMEs employ 58% of the workforce, and make up 99% of all British businesses (Reid and Smith 2002: 24). According to the European Observatory for SMEs 99.8% of European organisations in 2000 were SMEs – a figure which represented 66% of the total employment (Ihlstrom and Nilsson 2001: 171). In the United States, micro businesses make up half of all firms with employees (NASE News 2002). SMEs are fundamental to economic growth in Asia Pacific Economic Co-operation (APEC) economies, accounting for nearly 50% of total GDP and 35% of exports (APEC 1999: 34). Auger and Gallagher claim that ‘SMEs are the largest segment of US, Japanese, and Western European businesses’, making up nearly 86% of all businesses (1997: 55, 56; OECD 2000). Noting the importance of SMEs in all the OECD countries, OECD says that:

SMES represent over 95% of enterprises in most OECD countries, generate a substantial share of GDP and account for well over half of private sector employment (OECD 2000).

Closer to home, in New Zealand, SMEs form 35% of the economy output, 96% of number of firms, and employ 41% of all workers (Al-Qirim and Corbitt 2001: 142).

From these few figures it can be seen that SMEs form a vitally important sector of most if not all economies of the developed world. They are as vitally important to Australia’s economic and social prosperity, making a significant contribution to the nation’s economy (ABS 2002: 393). Figures for the number of businesses in the

various categories of Australian business (including large corporations) as at 2000 were as shown in Table 2.2.1 (ABS 2002: 393):

**Table 2.2.1 Number of businesses by size**

<b>Size of business</b>	<b>Number of businesses</b>
Non-employing businesses	542,100
Fewer than 5 employees	365,700
5-19 employees	167,100
20-99 employees	33,200
<b>Total SMEs</b>	<b>1,108,100</b>
100 or more employees	6,400
Total businesses	1,114,500

Note that these figures 'exclude public trading and general government entities, and businesses in the agriculture, fishing and forestry industries' (ABS 2002: 393).

SMEs make a significant contribution to Australia's economy (ABS 2002: 393). More than 90% of all Australian businesses are small business (96% according to Braun 2000), employing 40% of Australia's total workforce (Mitchell and Associates 2000: 2; Yellow Pages 1998) and providing more than 56% of private sector employment (AeBN 1998: 7). The ABS estimated that in 2002 there were 1,108,100 businesses with fewer than 100 employees, including owner-operated, employing almost five million workers (2002: 393). Variations in these figures underlie the difficulty of being able to count the actual number of operating SMEs at any one time.

Table 2.2.2 shows the number of workers employed within and by SMEs as supplied by ABS (2002: 393, 2003: 412). Note that this table includes business owners who work for themselves as well as those who are proprietors and partners without employees. Thus these figures are substantially higher than those given for employees only. By these figures, SMEs represent 66% of the Australian workforce. Regardless of the way the numbers are calculated, it can be readily appreciated that SMEs make a significant contribution to Australia's economic development as a whole.

**Table 2.2.2 Business size by number of employees**

Business type/size	Number of employees ('000)	
	(ABS 2002: 393)	(ABS 2003: 412)
Own account workers	647.4	713.2
Proprietors and partners	289.2	276.5
With 1-4 employees	760.2	775.1
With 5-19 employees	1,444.2	1,494.3
With 20-99 employees	1,287.3	1,376.5
<b>Total SME workers</b>	<b>4,428.3</b>	<b>4,635.6</b>
With 100-199 employees	512.6	465.2
Over 200 employees	1,753.2	1,801.1
<b>Total persons working</b>	<b>6,694.1</b>	<b>6,901.9</b>

Increasing the awareness and take-up of e-commerce by SMEs is a Government priority. A NOIE study, *E-commerce – Beyond 2000*, estimated that Australia's GDP could grow at a rate of more than \$14 billion a year as a result of e-commerce (NOIE 1999d: 11). If the adoption of e-commerce contributes to the success of the Australian economy, as promulgated by so many, then the successful adoption of e-commerce by SMEs would affect the entire Australian economy. The relatively sluggish take-up by small business of online options could detract markedly from the contribution this sector can make to that projected growth.

The impacts on Australia of the business digital divide could be just as devastating as the impacts of the social digital divide (SETEL 2001b: 1).

There is growing evidence from studies (ABS 2000a: 8; NOIE 2000b; Yellow Pages 1998) that small business is falling behind in the race for sustainable and valuable use of online opportunities. SMEs have been relatively slow to take up opportunities offered by online technologies, and there is a growing gap between the value flowing to the national economy from large enterprises using the internet and that coming from SMEs. The situation with SMEs across Australia could be summarised by this comment from *The other digital divide*, written about the ACT population:

There is an inequality of distribution in IT knowledge, skills and resources necessary to access online services and information among different groups in modern society (ACT Digital Divide Task Force to the Chief Minister 2001: 3).

[The concept of the Digital Divide refers to the gap between those with access to computers, to modern telecommunications and the internet and those without such access – the ‘information rich’ and the ‘information poor’ (Lloyd et al. 2000: 345.)] Increasing government support for SMEs is based on the view that SMEs contribute to employment generation and are exceptionally innovative (Commonwealth of Australia 1997: 17; Herbig et al. 1994: 39; Parker 2000: 239). There is also a perception that SMEs are more flexible and responsive to the demands of customers. This is the prevailing view in Australia where:

... one of the objectives of the current neo-liberal economic policy stance is to invigorate entrepreneurial activity and promote SMEs which are widely regarded as critical to the solution of current economic problems including unemployment and industrial stagnation. Most significant policy statements from the Howard coalition government have contained a substantial component focusing on SMEs (Parker 2000: 239).

In an endeavour to overcome their lack of knowledge and to increase the level of awareness for SMEs, Government at all levels – both Commonwealth and the States - has been pro-active. Further discussion on government initiatives is provided in section 2.7.1. *Government initiatives – policy, legislation and aid*. Although the level of awareness and understanding about e-commerce - and of its general benefits to business - is increasing amongst SMEs, a large percentage of them do not use the internet daily in their business operations.

Many businesses, especially small businesses, are resistant to actively engaging in e-commerce, specifically buying and selling over the internet. This resistance reflects a limited appreciation of the benefits to business of moving online as well as concerns about the cost and process of doing so (NOIE 2000a: 3).

Others are more direct about the future of SMEs if they do not adopt e-commerce. In the report, *Taking the plunge*, (2000), Gottliebsen, business journalist and honorary chair of the Australian Electronic Business Network Ltd (AUSe.NET), an organisation facilitating e-commerce take-up by SMEs, was quoted as saying:

Higher income earners, who represent 22% of the Australian population, now have 47% of discretionary spending power. Some 80% are connected to the internet. Small businesses cannot afford to ignore this market. At the same time, larger enterprises are radically re-engineering their business operations and compelling their suppliers to deal with them exclusively online.

This report shows, however, that many small and medium-sized business do not yet appreciate the implications of the major changes taking place around them.

My fear is that up to 20% of our SMEs will fail solely because they failed to adopt e-commerce as an essential way of doing business. I strongly believe that in the future you will be able to measure the prosperity, or the failure, of small enterprises by their adoption of e-commerce (AUSe.NET 2000: v).

Muecke, Director of the Small Business Coalition (SBC) and Chairman of the E-commerce and Telecommunications Advisory Group (ETAG), believes the consequences of Australian small business failing to adopt e-commerce early and on a wide-scale are many. He believes there will be wide ranging adverse national, community and business impacts, particularly on small businesses and their communities in regional and rural Australia. Competition at international, national and local levels from those businesses which adopt e-commerce early will lead to loss of market share and revenue, threatening small business profitability and commercial viability for many who do not. Small businesses, which are unable to quickly and effectively respond to competition, by, for example, implementing e-commerce initiatives, risk losing market share and many may not survive. Many small businesses could face bankruptcy, with consequential loss of jobs, proprietor equity and shareholder value. There will be significant economic losses, not only to the businesses themselves, but to the whole economy (Muecke 2000).

ABS (2002: 4) reported that SMEs represent an average growth of 6.5% per annum in the number of businesses, each with its concomitant contribution to the economy as a whole. Thus it is of critical importance that they continue to be able to contribute to the whole economy. Small business success is important, not just to those working in the sector, but to the whole economy. If SMEs prosper, then the Australian economy as a whole also prospers. If this prosperity depends on the adoption of e-commerce, then it is imperative SMEs adopt e-commerce as part of their normal business routine.

### **2.3 Electronic commerce**

The term 'electronic commerce' or 'e-commerce' means different things to different people. The way it is used in this research is defined in *Section 4.2.2 Definitions* in Chapter Four.

### 2.3.1 The significance of e-commerce

Electronic commerce is perceived as a powerful lever to foster growth of SMEs. Its use not only permits but facilitates an increase in productivity enabling the creation of new relationships with customers, distributors, suppliers and other strategic partners. It is widely seen as 'a good thing' for businesses of all sizes to adopt. Growth in business on the internet has been tremendous, with predictions e-commerce will become the primary means of doing business in the future, eclipsing mail order catalogue selling, seriously undermining conventional bricks-and-mortar retailers and changing many aspects of the way business is conducted within and between organisations (Colvin 2001; *Internet now or bust* 1999: 6; Kountz. 2002: 20; Poon and Swatman 1999; Sudweeks and Romm 1999: 1-3).

Various forecasters (Alston 2001a; Mansfield 2005; Mottl 2000: 62-64; NOIE 2000b; Steinke 1999: 209) continue to prophesise enormous growth rates in the volume of e-commerce conducted in the near and longer-term future. The Sacher Report in 1997 predicted that internet merchandising would grow from 'about US\$500 million to US\$5 billion and more by the year 2000' (OECD 1997: 25). A study by Cahners In-Stat Group in 1998 reported that companies were projecting major increases over the next two or three years. Of 261 companies surveyed in late 1998,

The average was 12 per cent of corporate sales, with a projected growth to 21 percent by 2000-2001. Nearly 40 percent of these firms are just getting into e-commerce (CIO Custom Publishing 2001: S1).

Dataquest, a member of the Gartner Group, estimated that in 1999 worldwide retailing would reach \$31.2 billion, and 'will experience explosive growth of over 1000% in the next three years (Dataquest 1999). These figures are supported by the projections of another researcher (Steinke 1999: 209) as given in Table 2.3.1.

**Table 2.3.1 Projected increase in e-commerce**

1998	\$8 billion
1999	\$18 billion
2000	\$33 billion

Online retail sales will grow from \$172 billion in 2005 to \$329 billion in 2010, according to a new Forrester Research report, "US e-Commerce: 2005 to 2010: A Five-Year Forecast and Analysis of U.S. Online Retail Sales." Online sales will maintain a 14 percent compound annual growth rate (CAGR) over the next five years, the report states. This forecasted

growth is preceded by a milestone for the online retail industry: 2005 marks the first year in its 10-year history that sales will top the \$100 billion mark.

Reeves et al. projected that:

By the year 2000, US internet commerce would be anywhere from US\$31 billion to US\$51 billion according to different research firms, ... with more than three quarters of the total being B2B commerce (2002: 11).

PriceWaterhouseCoopers, in a report which investigated the progress and anticipated outlook for the future of e-commerce, said that senior management in all companies surveyed expects that within three years e-commerce will provide more than five times the revenue it did in 2000 (PriceWaterhouseCoopers 2000: 7). Mansfield, the largest email marketer in Australia, and Business Seminars Australia both estimated that in 2005 there were over one billion web pages, with the number growing every day.

According to the EBusiness Trends newsletter of May 2001, companies with an online presence expect online sales to double in the next twelve months, 'from a mean of 4.7% to 9.5%' (Upton 2001). Current leaders in terms of percentage of revenue attributed to internet sales are the United States, Korea, Japan and Mexico. By 2001, Argentina, Australia, the Netherlands, Norway and South Africa were expected to join those countries with more than 8% of internet related sales (Elkin 2002). In Australia, NOIE (2000b: 3) predicted that internet-based commerce would grow from \$61 million in 1997 to \$1.3 billion in 2001, yet in 2000, internet commerce accounted for a very small proportion of economic activity – only 0.4% of sales (ABS 2000a: 14).

In the United Kingdom, Telcomworldwire reported that in April 2002 that e-commerce was worth 2.45% of all retailing, worth GBP429 million (Great Britain pounds). Forrester Research in 1999 predicted that by 2004 online shopping would reach \$184.5 billion in revenue (Post 1999: 1).

Madden and Coble-Neal (2002) looked at the growth in e-commerce in Australia, not from the volume of sales, but from the growth in demand and supply of internet and internet-related services. They pointed out that:

Since 1997 the number of internet service providers (facilities-based and resellers) has increased by nearly 40%; the number of points-of-presence per internet service provider has increased 5 times; the number of hosts connected to the internet has quadrupled; and internet traffic has increased from 6 to 10 times (Madden and Coble-Neal 2002: 343).

Whichever forecaster or researcher one reads, growth projections are enormous. It remains to be seen if growth reaches these projections, but even if they do not, it is generally accepted that there will be huge gains in electronic commerce. There are some, of course, to whom these huge predictions are meaningless. NOIE suggests that if e-commerce grows by some huge sum then this growth will be offset by a corresponding loss by bricks-and-mortar retailers (1999d: 11, 23). If e-commerce continues to grow at projected rates, what will be the effect on traditional bricks-and-mortar retailers? Will traditional sales experience a decrease in volume to offset the increase in electronic commerce? This question does not seem to have been considered by any of the cited researchers, and is not discussed in this thesis, but does need to be considered. Perhaps this could be the subject of further research.

World trade between businesses transacted over the internet have been variously estimated to total up to \$43 billion by the end of 1999, and surpass \$300 billion by 2003 (NOIE 2000b: 3). These projections referred to business-to-consumer (or what has sometimes been called B2C) commerce. Gamble anticipated the move from B2C business ventures to business-to-business (B2B) commerce would substantially increase the volume of e-commerce (1999: 24). Gore, USA Vice President in a report to Congress, in 1998, estimated that by the year 2000, B2C electronic commerce would account for a sales volume of \$80 billion a year, and B2B electronic commerce will account for a sales volume of \$300 billion a year – a significant difference between the two types (Pereira 1999: 145). On their own these figures seem impressive, but this growth needs to be put in context with conventional direct sales which Whiteley estimated had a total retail market of about twenty times that of e-commerce (1999: 19).

A brief report from AMR Research (2000) forecasted that B2B electronic commerce would reach \$5.7 trillion by the year 2004, boosted by support mechanisms from related industries.

If the largest and most dominant player in each vertical industry moves to the web, it will pull other companies along. That will accelerate the move to business-to-business commerce. ... AMR notes that exchanges for buying and selling in specific industries will expand into logistics, financials, and other services (AMR Research 2000: 24).

Even larger figures were predicted by Jupiter Communications (an internet research company) that business-to-business e-commerce would approach \$6.3 trillion (US) by

2005 (Bidgoli 2003: 7). However, care needs to be taken when reading these figures, for, as McDonald (1999: 92) says, predictions about the growth and profitability of electronic commerce will continue to remain self-serving. Different researchers will also come up with different results because they use different forecasting tools. Forecasters will predict growth that will reflect their own biases and support their interests. Projections are always subject to variations according to methods of calculating them, and open to change for numerous reasons, but there is some consensus among the different research groups. Although their figures may differ widely, clearly they all believe that online retailing will see phenomenal growth in the next few years.

Despite widespread predictions of the rapid increase in the growth of e-commerce, many SMEs, both in Australia as well as overseas, are not part of that growth (Brown 2002: 10, 2002a; Elkin 2002; Lewis and Cockrill 2002; Moran 2000: 8; Poon and Swatman 1999; Pracy and Cooper and Cooper 2000: 3-4; Sathye and Beal 2001: 1). For instance, the AUSe.NET, Report, *Taking the plunge*, found that

SMEs still have been slow to take up e-commerce due to the lack of information on 'why' it is important to their businesses. Worse still almost 50% of those connected to the internet think that e-commerce has no place in their businesses (AUSe.NET 2000: 37).

Even when rapid growth can be expected due to increased internet use, sometimes it just does not occur. Han and Noh (1999-2000) investigated why electronic commerce sometimes fails to appeal to customers despite promising plans, analysing the reasons through inverted critical success factors that they called critical failure factors. The authors examined every possible obstacle facing e-commerce that is discussed in the literature, and performed a survey using questionnaires. Their goal was to identify the critical failure factors that counteract the growth of e-commerce and suggest possible strategies to overcome them. Although they considered 44 variables, the major ones included infrastructure limitations, integration of payments into the buying process, adherence to the consumer marketplace, moving supply chains and products into the virtual market, and business governance. A number of these issues have been incorporated into this thesis.

While Australia has been relatively successful in getting many business online there is still a gap between small and large businesses – 55% for small versus 95% large (ABS

2000a: 5, 8). These figures had grown to 65% for small and 99% for large by 2004 – figures based on the 2001 census (ABS 2004: 628-635).

The cause of e-commerce is espoused by all major stakeholders - governments, development agencies, educational institutions, internet providers, telecommunications and broadband service providers, and even by business itself. Millions of dollars are being spent annually in providing the infrastructure, in training, and in promoting awareness of the potential benefits of e-commerce to SMEs in the expectation that these businesses would become part of this projected growth. There are many stakeholders, all eager to see SMEs succeed in their adoption of e-commerce. Governments of all major countries are establishing initiatives to ensure the successful adoption of e-commerce by SMEs (Poon and Swatman 1999). It appears it is imperative for SMEs to adopt e-commerce if they are to survive in the current political climate in most Western countries. For instance, Groves, founder of Intel, is quoted as saying in five years time all companies will be internet companies or they won't be companies at all (Barnes and Hunt 2001: ix). Or, as Blair, British Prime Minister, said 'Businesses will be e-commerce or no business at all' (Kinder 2002: 130). When they adopt e-commerce, SMEs must make sure that they do it in a way that supports their business strategies:

The greatest threat to an established company lies in either failing to deploy the internet or failing to deploy it strategically (Porter 2002: 20).

Wen et al. say that:

Electronic commerce is no longer an alternative; it is an imperative. The only choice open is whether to start quickly or slowly (Wen et al. 2001).

Noting that e-commerce is an innovation, West reminds us that:

The economic history of the last ten years has shown quite convincingly that nations that succeed in promoting innovation have dramatically outperformed those that don't, achieving superior wealth creation, productivity increase, and living standard improvement (2001: 22).

This sums up the arguments behind the government's efforts to bring SMEs online.

Fingar and Aronica are convinced that there is no argument:

"E" is dead because e-business is no longer an option, rather every business must be an e-business (2001: xi).

### 2.3.2 Use of e-commerce technology

Although growth in the use of the internet is not the same phenomenon as growth in e-commerce, it offers an indication of the potential of e-commerce. The spectacular rate of increase in the number of households with internet access offers prospects for a comparable rate of growth in direct sales to individual customers. Estimates of the number of computer users world-wide with access to the internet, like estimates of the volume of e-commerce, fluctuate widely. In 1998, Campbell quoted from NUA Internet Surveys (April 1998) that there were approximately 119 million online users (1998: 12). He summarised the number of online users by region:

**Table 2.3.2 Online users by region (approximate number in millions)**

<b>Country</b>	<b>Online users</b>
North America	70
Europe	23
Asia / Pacific	17.25
South America	7
Africa	1
Middle East	0.75
<b>Total</b>	<b>119</b>

A year later statistics released by the Computer Industry Almanac Inc. in February 1999 claimed that the number of internet users world-wide rose from 61 million in 1996 to over 147 million by the end of 1998, with more than half of these users in the US. This same report predicted that the number of internet users world-wide would increase to 320 million by the end of 2000 (Steinke 1999: 209). See Table 2.3.3 below. Since then numbers of internet users have continued to grow.

**Table 2.3.3 Projected number of internet users**

Year	Number of internet users (in millions)
1996	61
1998	147
2000	320

A Booz Allen Hamilton study, published in November 2002 by the Office of the e-Envoy and the Information Age Partnership of Great Britain, reported that Sweden leads the world in household internet penetration with 67% of the population living in households that are connected to the internet. Australia, Canada and the US are all next in line with over 50% of their populations living in connected homes. Following these countries is the UK with 49% of its population living in internet-connected households ( Booz Allen Hamilton 2002).

Australians are heavy computer users. In September 2002 65% of Australian households owned or leased a computer. As well as being heavy computer users, they also are great users of the internet, with 54% of householders having internet access (Lloyd and Bill 2003; NOIE 2003a). Even though these figures indicate the situation for 2002, it is unlikely that since then this figure will have risen substantially, as NOIE reported that during the 12 months to September 2002, levels of household connectivity in Australia remained fairly static, noting that this is also a characteristic of other mature information economy consumer markets such as Canada and the US (NOIE 2003a). [It is difficult to estimate further increases as all published research since that date continues to use figures from the 2001 census.]

The development of e-commerce is by no means restricted to very large economies. It should be remembered that of the top ten countries in terms of computer penetration per person, half of these countries (Norway, Finland, Denmark, Sweden and New Zealand) have populations of less than 10 million. With a population of 17 million, Australia ranked second in the world in terms of computer penetration and roughly eighth in the world in terms of installed computing power (OECD 1997: 74). Five small countries led the way in the adoption of e-commerce in a way that is out of proportion to their size in the world's economy – Australia, Ireland, Slovenia, Singapore and the Netherlands (Poon 1998a; Poon and Swatman 1998; *Singapore's e-*

*commerce net strategy bears fruit* 2000: 32; Tan and Teo 1998; Tenorio 2002: 2; Vogel and Gricar 1998).

Australian businesses of all sizes are also heavy users of computer technology, although in 1999, ABS reported that the use of *internet* technology (not *computer* technology) was 'low' (ABS 1999b: 1). The proportion of businesses using computers, accessing the internet or using web sites increases with business size (as illustrated in Table 2.3.4 below (ABS 2000a: 8)).

**Table 2.3.4 Business use of e-commerce technology**

Size of business	Use a computer	Have access to internet	Have a web site
More than 100 employees	100%	95%	68%
Less than 5 employees	69%	50%	9%
All businesses	75%	50%	16%

[It was not possible to obtain figures for SMEs separately, although Moran (2000: 8) reported in the same year that 66% of SMEs had internet access.]

While estimates vary widely, it appears that in the more technologically advanced economies such as France, Germany, the United Kingdom and the USA, the majority of SMEs have access to the internet or could easily gain access to it. In less developed countries percentages are much lower, but rising:

In Slovenia, for example, approximately 50% of small businesses have internet access (Vogel and Gricar 1998).

According to international analysts International Data Corporation, information technology (IT) spending on internet-based initiatives is expected to double from \$5.05 billion by end of 2001 to \$10.7 billion in 2005 - in four main areas - internet hardware, internet/e-commerce software, internet/e-commerce services and data communications technology. This figure does not include rents, salaries, labour and so on. If it were to include these associated costs, then the total projected expenditure would be even greater (Hellaby 2001: 13). If he is correct, access to the internet will continue to grow.

Internet access is thus becoming accepted and is likely soon to be the norm for global small businesses. According to a Booz Allen Hamilton study in 1999, 92% of CEOs around the world believe that the internet is going to transform the way in which business is conducted by businesses of all sizes. It will be an imperative for those planning to conduct business globally.

As already noted, SMEs in Australia, in particular, have been slow to adopt e-commerce (Alston and Macfarlane 2001; Van Bereren and Thompson 2002). A study reported in the *Financial Times* (Moran 2000: 8) found that over 50% of SMEs want to sell online, for they believed they were falling behind their larger rivals in their internet use. Yet, they did not adopt. Some 66% had internet access. Of those 66%, fewer were using the internet to generate sales, with 30% of wholesalers and retailers, and just 17% of manufacturers selling via the internet (AUSENET 2001).

This situation is not unique to Australia. The uptake in Britain is also slow. A report commissioned by Virtual Access IT Company, found British SMEs made very little use of the internet. In comparison, 94% of British corporations had access to the internet. However, only 69% have leased line or Integrated Services Digital Network (ISDN) access – considered essential for high volume corporate e-commerce use (Moran 2000: 8; *SMEs risk losses with low tech approach* 2000: 8). The situation with British SMEs is summarised below in Table 2.3.5 (*SMEs risk losses with low tech approach* 2000: 8).

**Table 2.3.5 British SMEs' use of the internet**

<b>Internet use</b>	<b>Percentage of SMEs</b>
Had no internet access or email	64%
Had no web site	52%
Planning a web site	16 %
Had a web site	22%
Used web site extensively	6%

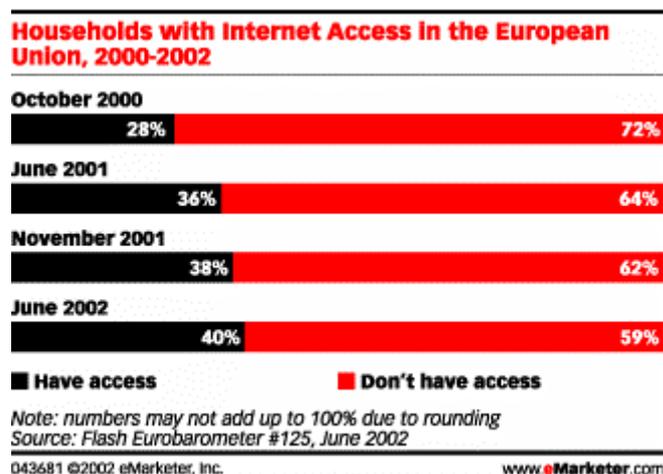
According to the Booz Allen Hamilton (2002) study, the countries with the best *environment* for e-commerce are the USA, the UK and Canada. Specifically, the study reports that Sweden, the USA and the UK have the best *market* environments for an e-

economy because they display a combination of low internet access and a strong 'brainpool' of users (meaning they have raised understanding of ICTs). Booz Allen Hamilton believes that the USA, Canada, the UK and Australia all have the best *political* environment for an e-economy with strong political agendas to push the development of e-commerce. Finally, Japan and the USA lead in terms of the strongest *infrastructure* environment (Booz Allen Hamilton 2002; Rimmer 2001: 2).

Electronic commerce is widely accepted in some European Union (EU) countries, but in others, such as Spain, it is only at the developmental stage. For instance, although Spanish small and mid-sized companies have been aware of what has been happening in other European Union countries, they have been slow to convert to e-commerce, being quite content with the limited markets available within their own boundaries. This, however, may need to change if they are to continue to remain viable when SMEs in neighbouring countries are taking advantage of the new medium (Calabuig and Jurado 2001). In Holland the main barrier to internet adoption and to development of a web presence was simply a perception that the internet or a web site would not lead to more efficiency or lower costs (Walczuch et al. 2000: 563-564).

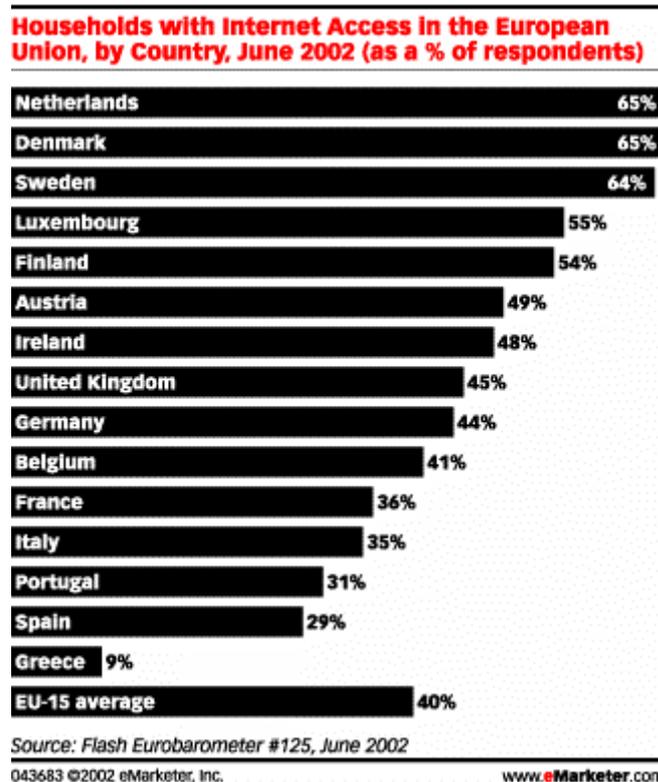
Elkin's report of eMarketer's May 2002 *Europe Online Report* found that among EU households participating in the November Eurobarometer 112 survey, the internet access rate was just 38% (Booz Allen Hamilton 2002). The June 2002 Eurobarometer study, which polled 30,336 EU citizens (approximately 2,000 per member state) by telephone in May and June 2002, reported that the access rate had risen to 40%. Table 2.3.6 indicates this growth (Elkin 2002 S40).

**Table 2.3.6 Households with internet access in the EU**



The smaller, more technologically advanced Northern European nations enjoy penetration rates that top the 50% mark with Greece occupying the opposite end of the scale, with penetration rates still languishing below 10%. In fact, the most recent Eurobarometer survey shows that household access in Greece actually declined by a significant 2.5% from June 2001 to June 2002. In general, the nations of Southern Europe lag behind the rest of the EU member states in household internet access (Elkin 2002). Table 2.3.7 illustrates this situation.

**Table 2.3.7 Households with internet access by country**



There is considerable variation with the level of adoption within various countries. As with other developed countries, South Africa is keen for its businesses to adopt e-commerce, and is widely promoting its use, yet it is another in the low internet use category. South African businesses could miss the wave of internet-based commerce because of the low level nature of their technology and a lack of awareness in general. Almost 50% of South African retailers – including some large, well-known brand-name organisations – are in danger of missing out because their IT systems are so

basic. Research conducted by PC-POS, a leading retail point of sale vendor, revealed that 45% of retailers are still using 'old-fashioned cash registers'. The problem here is further compounded by lack of telecommunications infrastructure in regional areas (*Local retailers could miss e-commerce wave 2000: 1008*). The situation fluctuates from country to country according to the measure used:

Covering the global seven (G7) countries, the Booz Allen study reports that Sweden leads the world with the highest household internet penetration with 67% of the population living in households that are connected to the internet. Australia, Canada and the US are all next in line with over 50% of their populations living in connected homes. Following these countries is the UK with 49% of its population living in internet-connected households. Booz Allen finds that France trails with just 25% of its population connected from home, but notes that 60% of French households, or 16 million, have Minitel terminals which provide access to limited interactive services (Booz Allen Hamilton 2002).

In the future, use of wireless technology will or should make it possible for such disadvantaged regions to compete successfully with their wired online counterparts.

Use in Australia of the internet is growing. NOIE (2003a) reports on Australian household access to the internet since February 1998 when the ABS first began monitoring internet take-up. The ABS series tracked internet adoption levels from February 1998 to November 2000, when the ABS discontinued its regular household ICT survey program (ABS 2001: 3). From December 2000 to December 2002, household connectivity levels in Australia were tracked using data collected by AC Nielsen. Australia experienced phenomenal growth in household connectivity levels during the period from February 1998 to June 2001. Specific points to note include:

At February 1998, 13% of Australian households were estimated to be online by the ABS.

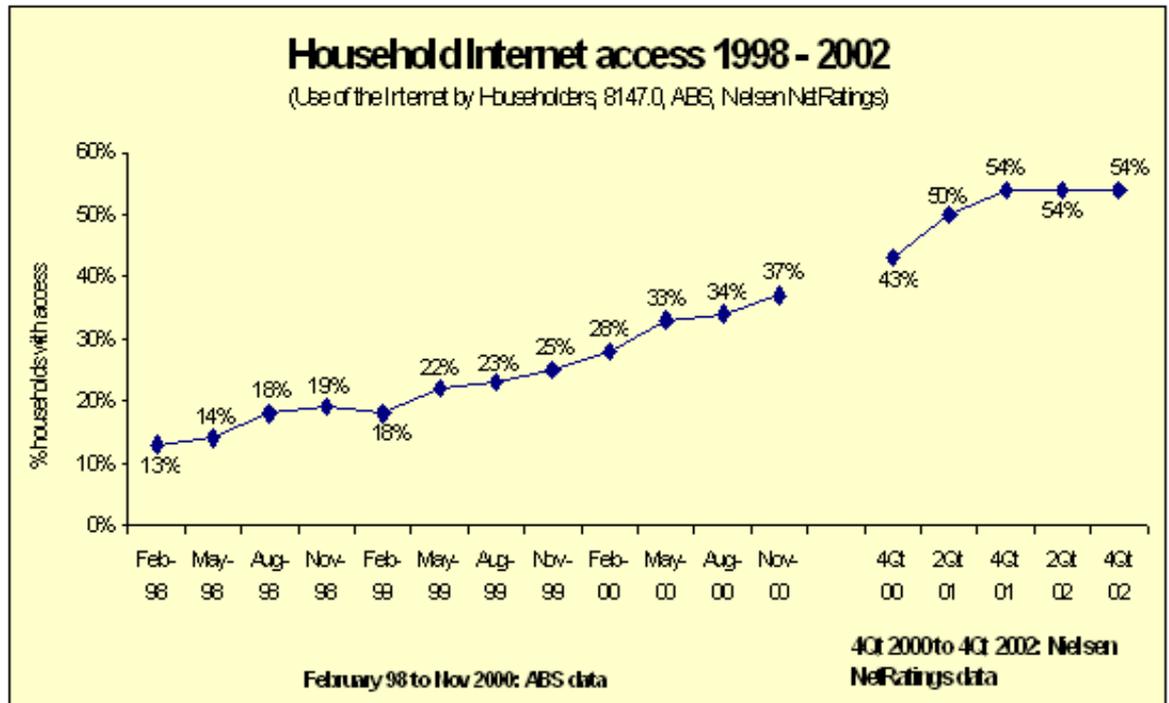
In the thirty-three months to November 2000, household connectivity increased to approximately 37%, reaching 50% by the end of 2nd Quarter 2001. This represented an increase of nearly three hundred per cent (285%) during this period.

A significant slow-down in growth in households online from the second half of 2001 typified by:

The internet adoption curve for households in Australia showing a holding pattern since 2001, with levels of household internet access stable on 54% from the end of 2001 and throughout 2002.

This pattern of stabilisation is also found in other benchmarked countries with household connectivity levels in excess of 50% (NOIE 2003a).

The following table shows this situation (NOIE 2003a):

**Table 2.3.8 Households with internet access in Australia**

There has been little reported increase since 2002, with figures stabilising, with considerable disparities in online access and use between households and SMEs still existing (NOIE 2002d). SMEs need to increase their use of the internet to comparable figures if they are to take advantage of what e-commerce can potentially offer. If households are using the internet, they are going to demand online access from their SMEs. One of the greatest challenges for Australia is to convince SMEs that both their survival and future prosperity depend on their adopting electronic commerce - if the prognostications of various forecasters are correct. Various factors affect the adoption rate. Those issues affecting the rate of adoption have been further explored later in this thesis, especially in Chapter Three.

[Figures for usage of computers, internet and e-commerce in Australia have traditionally been provided by the ABS, NOIE (now replaced by AGIMO) and DCITA. Each of these departments continues to publish new materials, but the figures in these publications are based on the 2001 census. They have no up-dated figures. Indeed, a search of AGIMO has found no new publications on e-commerce since it took over NOIE's operations. The ABS continues to publish material based on the

2001 census, while DCITA has had its focus on e-commerce downgraded, with the Communications Research Forum, which had been a valuable venue for distribution of research results, having been abandoned several years ago.]

### **2.3.3 Mobile commerce**

Mobile commerce offers a viable extension to commerce based on fixed technologies. Consumers are rushing to adopt wireless technology in a manner similar to their early use of the internet. Estimates of the number of users of wireless or mobile technology are as variable as for users of the internet. Motorola predicted in 2000 that more than half of all connections to the internet would come through wireless devices by the year 2003 (Elkin 2000). IDC predicted 50 million handheld devices will be in the US workforce by 2003, a large proportion of them with wireless capabilities (Flisi 2001). IDC further predicted that:

By 2004, there will be approximately 1.3 billion subscribers to mobile web services;

USA mobile commerce revenues will increase from \$29 million in 2000 to over \$20.8 billion in 2004;

In 1999 there were 125 million subscribers to wireless services which generated revenue of nearly \$46 billion. In 2004, the subscriber base will be 207 million, with revenue reaching \$76 billion.

The USA mobile worker market will grow from 39 million in 2000 to 55 million in 2004 (Flisi 2001).

This projected growth did not eventuate in that timeframe, but is growing. Vendors of mobile technologies see companies eager to tap wireless access for commerce, messaging and other mobile work force functions. However, the lack of security is a bigger problem with mobile commerce than it is with internet commerce. At present vendors are focussed on providing a range of services that will attract new users. As was the case with the internet initially, security is not yet considered important, but must become of concern.

Many experts predict that, much like the wired internet, wireless users and IT managers will end up fending off a steady stream of virus attacks, dealing with hacks into user accounts and scrambling to patch security holes. Security efforts that are underway are hampered by divergent networks and protocols and bickering over which methods are best for the wireless world (Du Bois 2000: 1).

However, there seems, according to Kountz, to be three other factors that need to be fulfilled if mobile commerce is to succeed as a satisfactory alternative to traditional e-commerce. These factors include:

1. Marketing vision must be accompanied by strong network and device technologies;
2. Services must encourage stronger content;
3. Capable payments platforms must be in place so users and content providers can easily make and accept payments.

It is essential that issuers understand what to-day's m-payment activities mean for them, so as to prepare for tomorrow's more sophisticated devices (Kountz 2002: 20-21).

Forrester Research projected that, by 2003, 57% of the work force would be mobile. Yet, the mobile internet is still in a very early stage of adoption. IDC believes that the differences between mobile and non-mobile organizations have less to do with wireless access and more to do with existing business models and market targets (Allen 2003: 25-26; Du Bois 2000; Elkin 2000; Flisi 2001; Lucas and Boyd [2001]: 60; McKelvey and Texier 2000: 235-238). These estimates indicate an expected explosion of mobile technologies. There is considerable value in providing wireless access as a means of improving customer retention, especially in industries such as brokerage and travel, where access to updated information from a mobile device is in demand.

Small displays, slow transmission speeds, and cumbersome data-entry methods will limit mobile internet use to functions that are dependent on timing, location, and experience. These include email, stock quotes, weather, travel delays and itineraries, and point-to-point directions. Albeit not direct commerce opportunities, these services can be leveraged to build customer relationships and initiate indirect commerce. Most wireless internet use, in the short term, will be for information query rather than transactions (Flisi 2001).

Speaks believes wireless or mobile technology could provide the future to broadband adoption (2000: 71). It remains to be seen whether the promise of the mobile technology for commercial purposes will be fulfilled, or whether it will remain the domain of young users. Unforeseen challenges may inhibit its further uptake by consumers as an extension to other forms of e-commerce.

## **2.4 Factors affecting the adoption of e-commerce**

### **2.4.1 General incentives**

There have been studies that have investigated how SMEs view e-commerce, the potential benefits to be obtained from engaging in it, the perceived disincentives that deter them from adopting it, the triggers that pushed them into adopting, how they went about the process of adoption, and what they achieved from adopting. The many benefits perceived to derive from engaging in e-commerce are seen as triggers or enablers to the adoption of e-commerce. Perceived benefits, however, are not the only reason businesses engage in online commerce. There are often other triggers that push them.

External initiatives, such as government requiring suppliers to deal only electronically, can be significant triggers (Department of Industry and Technology 2001). According to Ah-Wong et al. (2001), the triggers or enablers or drivers of e-commerce are perceived as the technological, organisational and governmental factors which encourage e-commerce to boom. They summarised them as:

Telecommunications advances following deregulation and increased competition;

Technological push, driving down the cost of hardware and software;

The infinity of cyberspace means that all have the opportunity to participate (Ah-Wong et al. 2001: 101).

In all, greater business maturity seemed to underlie SMEs' decisions to incorporate e-commerce into their business procedures. According to most of the studies done, SMEs, regardless of whether they have adopted e-commerce, perceive a large range of potential incentives to be gained from adopting beyond those described by Ah-Wong et al. These are discussed in the following section.

### **2.4.2 Perceived incentives for the adoption of e-commerce**

Large businesses and government departments have readily adopted e-commerce. While it is widely accepted that there are many advantages to be gained from participating in it, SMEs have been resistant. There have been quite a number of studies that have investigated the benefits businesses perceive they will achieve from adopting e-commerce. These studies include Ah-Wong et al. 2001; APEC 1999;

Behendorff et al. 1996; Campbell 1998; Damanpour and Damanpour 2001; Deloitte Touche Tohmatsu [2000]; Ernst & Young 2001; Fariselli et al. 1999; Farrell et al. 2001; Lu et al. 2001; Manning 2000; Marshall and McKay 2001; Mitchell and Associates 2000; NOIE 2000b; OECD 1997, 1998a; Papandrea and Wade 2000; Poon and Swatman 1997, 1999a; Pracy and Cooper and Cooper 2000; PriceWaterhouseCoopers 2000; Quayle 2002; Sathye and Beal 2001; Singh and Slegers 1998; Soliman 2000; Steinfield et al. 2002; Tan and Teo 1998; Walczuch et al. 2000; Warren 1998; Yellow Pages 1998; and Zhuang 2000.

Although these researchers have noted a range of different benefits to be gained from a business adopting e-commerce, there is a great deal of overlap in the results, with perceived benefits being considerable. Advantages of e-commerce as cited in the literature are summarised in Table 2.4.1.

**Table 2.4.1 Summary of advantages**

Advantages	Citing authors
Significant <b>cost savings</b> .	Ah-Wong et al. 2001; APEC 1999; Auger and Gallagher 1997; Campbell 1998; Lu et al. 2001; Jensen 2001; Manning 2000; NOIE (National Office for the Information Economy) 1999d, 2002e; Singh and Slegers 1998; Steinfield et al. 2002; Warren 1998; Zhuang 2000.
A <b>competitive advantage</b> by being ahead in the market.	Ah-Wong et al. 2001; APEC 1999; Deloitte Touche Tohmatsu [2000]; NOIE (National Office for the Information Economy) 2002e; Jensen 2001; Pracy and Cooper 2000; Soliman 2000; Tan and Teo 1998.
Access to <b>timely relevant information</b> .	Ah-Wong et al. 2001; APEC 1999; Baker 1999; Pracy and Cooper 2000; Soliman 2000; Tan and Teo 1998.
Reallocation in the <b>number of staff</b> needed as many of the processes can be made automatic.	Marshall and McKay 2001; Tan and Teo 1998; Warren 1998.
<b>Time savings</b> in many areas e.g. in placement of orders, obtaining delivery, communicating internally and externally, making online payments, ...	Ah-Wong et al. 2001; Baker 1999; Booz Allen Hamilton 1999; Jensen 2001; Manning 2000; Poon and Swatman 1999a; Soliman 2000.
<b>Improved communication</b> with customers and within	Ah-Wong et al. 2001; APEC 1999; Auger and Gallagher 1997; Booz Allen Hamilton 1999; Lu et al.

organisations.	2001; Manning 2000; Poon and Swatman 1999a; Soliman 2000.
<b>Immediacy of customer service</b> – for instance, email allows and facilitates immediate response to customer queries.	APEC 1999; Campbell 1998; Manning 2000; Soliman, 2000; Zhuang 2000.
<b>Improved customer service</b> and customer relationships by increasing the efficiency of business processes.	Ah-Wong et al. 2001; APEC 1999; Auger and Gallagher 1997; Baker 1999; Booz Allen Hamilton 1999; Lewis [2001]; Lu et al. 2001; NOIE (National Office for the Information Economy) 2002e; Poon and Swatman 1999a; Soliman 2000; Zhuang 2000.
Increased <b>speed of delivery</b> to market.	Booz Allen Hamilton 1999; Campbell 1998; Soliman 2000; Zhuang 2000.
<b>Tailoring of services</b> and products to specific sections of a client base.	Manning 2000; Rosen 2000; Warren 1998.
Facilitation of <b>sales direct</b> to the end user, bypassing intermediaries.	Bouchoris 1999; Soliman 2000; Zhuang 2000.
Reduction in the need to hold large <b>quantities of inventory</b> , lowering the holding costs of goods.	APEC 1999; Baker 1999; Zhuang 2000.
Improved <b>differentiation and the targeting</b> of specific sections of one's customer base.	Bouchoris 1999; Manning 2000; Warren 1998.
Expansion of the <b>geographical coverage</b> of the business to global markets.	Ah-Wong et al. 2001; APEC 1999; Auger and Gallagher 1997; Campbell 1998; Fariselli et al. 1999; Jensen 2001; Manning 2000; Pracy and Cooper 2000; Singh and Slegers 1998; Steinfield et al. 2002; Tan and Teo 1998; Walczuch et al. 2000; Warren 1998.
Greater <b>company exposure</b> to potential markets.	APEC 1999; Campbell 1998; Damanpour and Damanpour 2001; Pracy and Cooper and Cooper 2000; Singh and Slegers 1998; Steinfield et al. 2002; Tan and Teo 1998; Walczuch et al. 2000.
The development of <b>alliances</b> that will improve various aspects of supply and delivery.	Ahmed 2000; Baker 1999; Klein 2001; Kountz 2002; More and McGrath 1999; Poon and Swatman 1996; PriceWaterhouseCoopers 1999; Reeves et al. 2002; Soliman 2000.
<b>Competitive advantages</b> such as opportunities to adopt new business models and the ability to develop	APEC 1999; Booz Allen Hamilton 1999; Boucharis 1999; Fariselli et al.. 1999; Rosen 2000; Soliman 2000; Warren 1998;

and tailor more efficient customer support.	
A trickle down effect through a <b>supply chain</b> as suppliers come online, enabling the streamlining of the supply chain. Indeed, often it is the supplier that encourages the business to come online.	APEC 1999; Bouchoris 1999; Johnston et al. 2001; Pai 2000; Poon and Swatman 1999a; Soliman 2000.

A few of what appear to be the most significant of these potential benefits are discussed below in greater detail.

### **Cost savings**

At the top of the list of potential benefits is cost savings. There are many examples given in the literature of huge cost savings effected by the use of electronic media, but only a few examples are offered here.

For instance, the US Department of Commerce has estimated that the cost of making a bank transaction by traditional means is \$US1.07, a cost which is reduced to \$US0.01 per transaction by using the internet – a saving of 99%. Similar savings are evidenced with bill paying. The OECD estimates that between \$US2.22 and \$US3.32 per transaction costs can be reduced to between \$US0.65 and \$US1.10 – approximately 70% savings (Edwards 2000: 3).

As an example of a massive cost saving exercise, Microsoft demonstrates the savings possible in a large corporation. Similar savings could be extrapolated to SMEs, but obviously in a smaller proportion. In 1996, Microsoft was using over one thousand different paper-based forms. By converting these paper-based forms to intranet forms, by 1999 they were able to reduce the number of paper-based ones to a company-wide total of only 60 forms. In their first year of the conversion – 1997-98 – they saved an estimated \$40 million, with most of this saving being in processing costs. This saving has continued to grow each year ‘as programming costs for solutions have been absorbed and systems standardised’ (Gates with Hemingway 1999: 39-60).

Cable & Wireless developed a system they called e-trex (e-travel and expenses) whereby travel and expenses claims could be made online without the need for paper

forms to be completed. Processing a paper claim form with all receipts attached – checking the expenses, raising the claim on the system and then paying it – previously cost the company approximately 40 pounds sterling per claim. They estimated the e-trex system would cut that cost to just 7 pounds sterling per claim. Development of an online graduate recruitment system reduced the cost of recruiting each graduate from about 2,000 pounds sterling to about 100 pounds, resulting in substantial savings as the company recruits about 100 graduates each year (Sanders and Bell [2001]: 19-20).

Boise Cascade Office products found that it cost \$3.40 to process an order manually, but only \$1.80 electronically (CIO Custom Publishing: S10).

Closer to home, the Western Australian Government has developed Government Electronic Market (Gem), a project initiated by the Department of Industry and Technology. In 2001 the Western Australian Government was spending approximately \$5 billion on goods and services each year at an average cost per transaction of between \$75 and \$100 for simple purchases. It was predicted that Gem had the capacity to reduce this cost to less than \$10 per transaction over time and that up to 80% of Government purchasing would be impacted by Gem (Department of Industry and Technology 2001).

Switching to the internet avoids the inefficiencies and high costs of paper records while also avoiding the data support challenges needed for traditional computer-to-computer links (Reeves et al. 2002).

### **Cost benefit or return on investment**

The literature of economics suggests that users will adopt technology only if it provides a net positive return. Economists and business accountants constantly exhort businesses to consider the return on investment (ROI) before undertaking any new procedure or investment (Bierman and Smidt 1984: 36-37, 264-275; Colkin 2002: 34; D'Amico 2002: 13; Marshall and McKay 2001: 191-192; Spiegel 2002: 26; Zerbe and Dively 1994: 2). Good business practices note that any business seeking to adopt any new technique, product or service should scope the requirements, conduct a needs analysis and a cost benefit analysis of the anticipated return on expenditure of introducing the innovation. Electronic commerce should not be any different. Yet the few studies that have mentioned return on investment seem to have ignored the need for calculating the cost effectiveness of any proposed expenditure. Indeed, Kothari

and Kothari (2001: 1) suggest that it is enough that businesses be engaged in e-commerce, without focussing on profit. Unlike in the traditional area of commerce where there was a clear relationship between action and result, in the online situation most businesses had no mechanism for gauging the effectiveness of strategies employed (Marshall and McKay 2001: 201-202; Raisinghani 1997; Rosen 2000 [no pagination]; Zerbe and Dively 1994: 2-3, 487-489). Indeed, O'Neill et al. (1998: 101) noted that in spite of such need for gaining a ROI, there is some mixed evidence that some firms adopt an innovation even when it results in inefficient strategies within the organisation. These firms adopt the innovation not for the return, but in order not to be left behind in the eyes of their competitors. Benameur (1999) in a study of SMEs' use of information technology (not e-commerce specifically) found that SMEs will continue to invest in IT in the hope that a positive return will follow even when there was little evidence that it would, a finding supported by Van Beveren and Thomson (2002: 252).

While different researchers have noted that SMEs perceive a range of different potential benefits, the primary benefit, however, appears to be that businesses believe they can save money (and increase savings) by adopting e-commerce. In other words, there is a cost benefit to be achieved. E-commerce can significantly reduce costs in a number of areas – telecommunications, logistics, and finance are just three. In the area of logistics, for instance, a business can link the improved arrangement of deliveries, better pick-up hours, trucking times, and delivery configuration, making transactions more efficient, all the while paying careful attention to costs (CIO Custom Publishing 2001; NOIE [nd]: 1-2).

The OECD (1997a: 1) asserted that it can be difficult to quantify the value associated with e-commerce activities since many of its key qualities, such as convenience, variety and ease of access to information, are difficult if not impossible to measure. Most adopters of e-commerce appear to adopt for the potential of future profits, not because they had planned their investment to generate a profit in the foreseeable near future. Amazon.com is perhaps one of the best known online trading companies (although not a SME). Although it had yet to make a profit, it had been touted as the model online retailer. Its return on investment has not been an issue (APEC 1999: 38-39; *Too few pennies from heaven* 2000: 65-66). In 2005 this non-profit situation had been reversed (*Amazon.com shares up on joining S&P 500*).

### **Competitive advantage**

Many businesses have indicated that they believed they would gain a competitive advantage if they were among the early ones to have an online presence (Bidgoli 2003: 44-45; Greengard 2000: 41; Poon 2000; Rao et al. 2003: 12; Roehm 1999: 51-77; Teo et al. 1997-98). One of the most common misconceptions held by businesses of all sizes was that being first to adopt guaranteed success in e-commerce. Unfortunately, there are many examples that prove that being first is no guarantee of enduring success. Being first only guaranteed companies that they were first. It did not guarantee that they would not be overtaken by better, later competitors. The failure of large numbers of dot.coms during the last couple of years demonstrates that quite clearly. Although 'competitive advantage' was quoted by most researchers as being one of the most important potential benefits SMEs foresaw, it just does not come with being first on the internet. For those companies that 'do it right', being first can give them an advantage so that they become the default service for their area of business. It is imperative that when they set about adopting any of the elements of e-commerce they do it in such a way that they do not become yet another of the many casualties that marked the dot.coms. Yet, despite the failure of many online companies, Ernst & Young's *Global online retailing survey* (2001) shows that internet shopping still has scope for huge expansion. It just requires a slightly different mind-set.

Unless you can provide products and services that distinguish your company from all the others out there, it's nearly impossible to achieve competitive advantage. It's also difficult to create a consistent income stream (Greengard 2000)

says Jeff Behm, chief e-business officer for InsureHiTech, a business insurance brokerage in Princeton, New Jersey (Greengard 2000). Regardless of the product being promoted, a company can use the internet to serve customers in entirely different ways. SMEs need to adjust to this new environment by creating new capabilities and new tools. Many companies have learned the hard way that commerce on the internet requires a new mind-set completely. When moving to e-commerce, businesses need to change the way they do business. Their products and prices are more visible to their competitors, so they need to protect themselves. Developing unique products or offering unique services is one way to help guarantee success.

Nicks Wine Merchants, for instance, developed a proprietary line of Australian Bush Foods. These include products such as Dingo Beer, Witjuti products and Bush Chocolates. They also developed an online shopping mall with over sixty merchants. In addition, they produced a CD-ROM on the wines (and associated vineyards) they sell which viewers can purchase and which facilitates direct connection to Nick's web site (Phillips [1998]: 63-69).

Developing a focused, easy-to-use web site, translating marketing information from paper brochures to e-catalogues, and offering added value in the form of entertainment or information can stretch both the mind and budget. A company considering online sales must understand that successful e-commerce depends on enhancing existing distribution channels or eliminating them altogether (Greengard 2000).

Even when SMEs have an internet presence it does not necessarily mean that customers know about the business. Companies still need to advertise, and to promote their web presence in a way that is different from what they used to do. McCue found that SMEs were frustrated that search engines did not list their sites prominently (1999: 29). Use of appropriate meta-data on web sites, for example, will help to ensure that when customers are searching, SME web sites will be located higher in search results (Medeiros 2001: 115-116). Use of meta-data terms on the top level pages is a growing technique that helps ensure search engines will retrieve web sites. There are also techniques that enable people to measure the effectiveness and quality of their web sites so that they can be improved (Barnes and Vidgen 2002: 114-116, 123-124; Czuchry et al. 2002: 44-46; Houghton and Burgess 2003: 1-15; Zhang 1999: 47-51). According to *The myths and misconceptions of e-commerce* (2002: 22), the 'think global, act local' truism applies as companies find they still need to invest in local advertising to advertise their presence on the internet and build trust among new customers. This new way of doing business has reinforced the fact that the traditional ways of doing business do work online. Strategic planning, careful risk assessment, financial analysis and experience still count for a great deal if businesses are to succeed in the internet world. Once online, SMEs need to constantly improve if they are to maintain a competitive advantage. This may mean constantly enhancing the services offered to consumers (Zalud 1999: 109).

### **Strategic alliances and partnerships**

To take full advantage of what e-commerce can do for them, businesses need to look at doing things from a different perspective from what they have been used to doing. Electronic commerce for most SMEs should be an extension of their existing methods of conducting business – not a replacement. At the same time it is vitally important that their efforts to adopt e-commerce do not erode their core business activities (Brown 2002: 3-5; Poon and Swatman 1996). However, SMEs need to take greater responsibility for speeding up the rate of adoption in their own businesses.

The question is how to deal with these changes, at what cost and at what speed. This is not the time to worry about ‘disintermediation’. It is the time for cooperation, integration, and the consideration of customer loyalty, profitability and competitive advantage (Damanpour and Damanpour 2001).

This may mean they need to consider alliances with other companies that once they would have seen as competitors. The term ‘strategic alliance’ is often used loosely to embrace a variety of arrangements between actual or potential competitors. Firms ally themselves with others for various strategic purposes. An alliance, for example, allows firms to share the fixed costs (and associated risks) of developing new products and processes. It is also a way of bringing together complementary skills and assets that neither company could easily develop on its own. It can make sense to form an alliance that will help the firm establish technological standards for the industry that will benefit the individual firm.

A global strategic alliance is an agreement among two or more independent firms to cooperate for the purpose of achieving common goals such as a competitive advantage or customer value creation (Reeves et al. 2002: 10).

Or a firm can form an alliance to assist in promoting sales of its products. For instance, an intermediary can offer a trading area where product catalogues (multi-vendor catalogues) are produced, updated and promoted by the intermediary on behalf of a number of SMEs (Garcia et al. 2002: 49-52; More and McGrath 1999: 229-230; NOIE 2002h).

The volume of e-commerce is likely to be increasingly supplemented by intermediaries to solve emerging problems. The expansion of e-commerce may be expected to lead to an increase in the volume of relationships, such as outsourcing or business partnerships. The growth in the number of web sites and in information on them means that buyers and sellers may have problems in locating one another. In some cases the cost of searching online exceeds the benefits. This problem is

exacerbated in large industries where online adoption rates are high. An intermediary or a central market place makes it easier for businesses to find the suppliers or buyers that are appropriate for them, and for customers to find the retailers they need. This is likely to be the situation when a customer seeks to purchase low priced goods. It has been predicted that online intermediaries will continue to flourish in those industries that are large and fragmented with little product differentiation (Ah-Wong et al. 2001: 99-101; Booz Allen Hamilton 1999; Croson and Jacobides 1997; Ernst & Young 2001; Fischer 2000: 37; Keen 1999: 48; Klein 2001: 5; More and McGrath 1999: 252; NOIE 2002g; Phau and Poon 2000; Poruban 2000: 23-27; Reeves et al. 2002; Tweney 1999: 55).

However, firms must take care that they do not give away more than they receive while they are combining to better serve their customers. One outcome has been a desire to have a one-stop-shop to handle systems of integration both internally and externally (New Brunswick Information Technology Alliance 1998; Stanton [2001]: 67). As more businesses handle transactions over the internet, they seek a seamless method of moving data between their own computers and the computers of their suppliers and customers (Ahmed 2000).

We use the term 'collaborative commerce' to describe how companies are leveraging new technologies to enable business strategies across the enterprise. Our research shows that over 53% of companies are placing increased value on the importance of collaborative commerce. This statistic implies that companies are going to invest in B2B and collaborative commerce initiatives using the internet in order to work more effectively with their trading partners (Caudron 2001).

The use of alliances particularly favours SMEs that lack the large infrastructure and resources often needed to expand internationally.

Smart companies - particularly those that don't have a well-developed infrastructure - are now forging partnerships (Greengard [2001]).

Ahmed (2000) in his study of what he called 'champions of collaboration', found that firms engaging in collaborative alliances need to consider the goals of the collaboration, and the fit – person-to-person, time, strategic, organisational and functional – between their own firm and the target firm or organisation. Firms must first recognise an opportunity, and then seek appropriate partners to assist in meeting this opportunity.

However, not everyone sees the benefits of developing strategic alliances. Not every company sees the value of sharing what has been confidential information or is willing to trust its partners with it. Some also fear online collaboration might result in layoffs, loss of control and increased competition, or losing more than they gain (Varon 2001). Although all companies in the PriceWaterhouseCoopers study of 2000 used some form of e-commerce, very few had yet 'developed the strategic alliances and begun to address the organisational issues that are key to reaping the advantage that e-business offers' (PriceWaterhouseCoopers 2000: 9).

In many instances, huge opportunities exist - particularly in the areas of fast product delivery of internet orders and of adding internet connectivity to stores, shops, banks, malls and more. Beck believes that few old-line companies have jumped at the opportunity to build better relationships with suppliers and customers — partly out of fear that such action could offend partners. However,

Companies have to pro-actively look at how they can redefine relationships. It's no longer possible to sit back and react (Greengard [2001]).

According to Reeves et al. (2002) a good partner or ally has three principal characteristics:

First, a good partner helps the firm achieve its strategic goals.

Second, a good partner shares the firm's vision for the purpose of the alliance. The chances for success are greatly reduced if two firms approach an alliance with drastically different agendas.

Third, a good partner is unlikely to try to opportunistically exploit the alliance for its own ends. This involves a level of trust between the two (or more) firms (Reeves et al. 2002).

Reeves et al. (2002) and Booz Allen Hamilton (1999) have both suggested that to avoid potential losses, firms should consider strategic alliances as a new form of competition. They foresee a myriad of electronic relationships and shared processes developing as firms adjust to changing models of business. They recommend that firms accept that the firm gains the benefits of cooperation without forgetting that the partner is actually a potential competitor. More and McGrath (1999: 251-252) pointed out that various partners in strategic alliances were often suspicious of one another, and that the alliances worked only when the various members could see the benefits or values to be gained from them. One area in which partnerships or alliances do seem

to be growing is in that of mobile commerce. Alliances will allow all members to identify the best opportunities.

Partnerships are key. For financial institutions, carriers, and payment service vendors 'going it alone', partnerships are essential. In most cases, backing from both a bank or credit issuer and one or more carriers will be prerequisite for success (Kountz 2002: 23).

Today strategic alliances are routine aspects of international business when partners share costs, establish a pool of joint resources, and create a synergistic effect in the problem-solving process. With increases in strategic alliances, the way in which businesses view themselves and their competition is being drastically altered. The electronic commerce revolution has transformed the face of international business.

For buyers combining resources to create an industry-wide online trading capability means lower administrative costs, faster business processes, improved supply-chain communications and improved service levels can be achieved.

### **In summary**

With such a large number of potential benefits to accrue to SMEs if they adopt e-commerce, it is difficult to understand why they have been somewhat slow to adopt. Despite the seeming imperatives driving e-commerce activity by some SMEs, a significant proportion still do not include adoption of e-commerce in their business plans. Nor do they seem to have any apparent mechanism for incorporating e-commerce initiatives as an integrated part of their business planning strategy. Marshall and McKay found that only 22% of participants in their study had incorporated such planning strategies into their business plans (2001: 200).

It seems as if businesses need to combine both the online aspects of their business and the traditional methods that have already proven to be successful. Even Amazon.com which has long been promoted as the model of virtual business styles to be adopted has been forced to combine both methods. Originally relying on contacts with suppliers to deliver goods ordered to customers, it has found that it needed to build and staff its own warehouses to ensure that it could ship goods quickly, to guarantee availability, and to be able to combine goods from different sources into a single package. After a series of acquisitions and alliances, Amazon.com is no longer just a book store, but is now a super-store selling everything from hand tools and garden

furniture to cosmetics. Now it resembles other traditional bricks-and-mortar retailers – worrying about ‘too much inventory, razor-thin margins and expensive returns’ (*Too few pennies from heaven* 2000: 66). This, of course, opens the way for development of a new type of business – fulfilment and logistics companies. In the past such companies filled only large orders between businesses, but now they are moving to providing the solution to those orders that are only a single item or that combine small numbers of goods from a range of suppliers and distributors to customer homes. By decentralising their fulfilment locations, they can significantly decrease the time lag between order placement and delivery. They offer a dramatic increase in service levels. It appears that successful models will be a mix of virtual and physical methods of retailing (Cruz 2000: 8).

According to the various studies cited, SMEs themselves appear to recognise the potential benefits, but many still do not adopt. Do they consider the factors militating against adoption outweigh potential benefits?

### **2.4.3 Perceived disincentives to the adoption of e-commerce**

Paralleling the research on factors that enabled the adoption of e-commerce has been a similar number investigating the factors that act as inhibitors or disincentives to adoption. Many of the factors that act as inhibitors are the result of fear of the unknown or stem from a lack of awareness. Others are genuine concerns that are based on experience, either of the SMEs themselves, or of others they know, or that have been reported in the media. Different studies support the contention that there is a commonality of reasons that may deter SMEs from adopting e-commerce (Ah-Wong et al. 2001: 99-103; Begin and Boisvert 2002; Cromie 1989: 117; Farrell et al. 2001: 93-101; Fergusson 2001; Ihlstrom and Nilsson 2001; Kotwica 2001; Lawson et al. 2001; Lewis 1997; Lu et al. 2001; Mitchell and Associates 2000; NOIE 2000b; OECD 1997; Poon 1998a, 1999b; PriceWaterhouseCoopers 2000; Quayle 2002; Singh and Slegers 1998; Tan and Teo 1998; Vassilopoulou et al. 1999; Walczuch et al. 2000; Warren 1998; Welsh and White 1981; Yellow Pages 1998).

Ihlström and Nilsson investigated only barriers to SMEs’ adoption of e-commerce. Although their study was based in regional Sweden, not Australia, ‘it has one of the highest rates of SMEs in the country ... and has the highest rate [in Europe] of direct

access to the internet' (2001: 171), so can compare reasonably with the ACT situation. See *Chapter Four Section 4.7 Population to be studied* for reasons that could support this parallel. In addition to those barriers already mentioned, they found that lack of awareness, uncertainty, unsuitability of products, unavailability of resources, and security were significant concerns.

Kotwica (2001), in her survey of 120 companies situated in all continents, reported that resistance to the adoption of e-commerce by SMEs included security issues, resistance to change, and start-up costs. Are these reasons very much different from those that keep many people from accessing the internet at all? As part of a world-wide survey, researchers at Ipsos-Reid surveyed people in 30 countries who are not 'on the internet and have no plans to be'. The most frequently mentioned reasons for staying offline were as shown in Table 2.4.2 (Hogan 2001).

**Table 2.4.2 Reasons for staying offline**

<b>Reason given</b>	<b>Percentage of responses</b>
Have no need for the internet	40
Don't know how to use it	16
Cost	12
No time	10

According to the same survey, of the world's 5-6 billion citizens, 'only' about 6% are online (Hogan 2001). This untapped market offers enormous potential for the future growth of e-commerce as consumers come online. Mansfield (2005) estimated that there were approximately one billion web sites – a figure which indicates an enormous growth in the number of active internet users.

Shepherd, at the launch of *Yellow Pages Business Survey* (2002), pointed out that there are different barriers at different times or points along the online journey. Although concerns were numerous, not all SMEs had the same concerns. Disincentives cited in the literature, not in any order of importance, are summarised in Table 2.4.3.

**Table 2.4.3 Summary of disadvantages**

Disadvantages	Citing authors
<p><b>Security issues.</b> SMEs felt customers were unwilling to carry out financial transactions over the internet and/or that financial transactions would not be secure.</p>	<p>Auger and Gallagher 1997; Bauer et al. 1999; Castelfranchi and Tan 2002; CIO Custom Publishing 2001; Damanpour and Damanpour 2001; Dasgupta 1999; <i>Embracing e-commerce</i> 1999; Farrell et al. 2001; Fergusson 2001; Jensen 2001; Kotwica 2001; Lawson et al. 2001; Lightner 2003; Pracy and Cooper 2000; PriceWaterhouseCoopers 2000; Rebel and Koenig 1999; Sudweeks and Romm 1999; Whiteley 1999; Yellow Pages 1998, 2002; Zalud 1999.</p>
<p><b>Legal issues.</b> These were closely related to issues of security and privacy.</p>	<p>Bidgoli 2003; Cho and Clark 2000; Damanpour and Damanpour 2001; Dasgupta 1999; Hoyle 2001; Jensen 2001; Pracy and Cooper and Cooper 2000; <i>Security in a web-based environment</i> 2000; Willis and Ding 2000; Zugelder et al. 2000.</p>
<p>Difficulty of <b>guaranteeing privacy.</b> There was a corresponding concern about the lack of privacy for both customers and business themselves.</p>	<p>Bidgoli 2003; Castelfranchi and Tan 2002; Jensen 2001; Singh and Slegers 1998; Zalud 1999.</p>
<p><b>Poor product match</b> or 'not suited to my type of business'.</p>	<p>Azzone et al. 2001; Clark 2001; Ihlstrom and Nilsson 2001; Lewis 1997; Lu et al. 2001; OECD 1997; Poon 1999b; Rosen 2000; Stauber 2000; Walczuch et al. 2000; Yellow Pages 2002; Zalud 1999.</p>
<p><b>Lack of personal contact.</b></p>	<p>Begin and Boisvert 2002; Colvin 2001; De Witt 2002; Pracy and Cooper 2000; Singh and Slegers 1998; Yellow Pages 1998.</p>
<p>Lack of knowledge of what was involved with a need for <b>education and training.</b></p>	<p>Auger and Gallagher 1997; Calabuig and Jurado 2001; Drew 2003; Evans 2002; <i>Ireland trains SMEs in e-business</i> 2002; Kotwica 2001; Pracy and Cooper 2000; Welsh and White 1981.</p>
<p><b>Lack of awareness of the potential</b> of e-commerce for their business - or what Kotwica (2001) called 'resistance to change'.</p>	<p>Deloitte Touche Tohmatsu [2000]; <i>Embracing e-commerce</i> 1999; <i>Ireland trains SMEs in e-business</i> 2002; Kotwica 2001; Lawrence 1997; Papazafeiropoulou 2002; Pracy and Cooper 2000; Quayle 2002; Stauber 2000; Walczuch et al. 2000.</p>
<p><b>Lack of infrastructure.</b></p>	<p>Auger and Gallagher 1997; <i>Embracing e-commerce</i> 1999; <i>Local retailers could miss e-commerce wave</i> 2000; OECD 1997; Tan and Teo 2002; Zhuang 2000.</p>
<p>The <b>cost of investment</b> or limited company resources (including personnel expertise, technological and</p>	<p>Auger and Gallagher 1997; Deloitte Touche Tohmatsu [2000]; Kotwica 2001; Lawson et al. 2001; Lewis 1997; NOIE (National Office for the Information Economy) 2001; Stauber 2000; Tan and</p>

financial resources).	Teo 1998.
<b>Difficulty of promoting the site.</b>	Bidgoli 2003; Medeiros 2001.
<b>Customers not being prepared</b> for e-commerce.	Begin and Boisvert 2002; Brown 2002; Ihlstrom and Nilsson 2001; Pracy and Cooper 2000.

These are all serious concerns that need to be addressed if electronic commerce is to become a common world-wide reality. The following factors, as encapsulated in the literature, and shown to be major concerns militating against the adoption of e-commerce by SMEs, are discussed at greater length.

### **Costs of adopting e-commerce**

If consumers lack the technology to access the internet they cannot engage in e-commerce. Cost – not only of the technology - was considered a significant contributory barrier (Al-Qirim and Corbitt 2001: 145-146; Ihlstrom and Nilsson 2001: 175-176; Mashall and McKay 2001: 195). Access to the internet and electronic marketplace require considerable time commitment and commitment of personnel and of financial resources – resources which many (both consumers and businesses) believe they cannot afford as they often believe there is not sufficient financial return to justify outlaying the cost of the investment. Costs associated with e-commerce cannot be compared with an investment that is expended once, and written off over the life of the investment. It is ongoing. Not only must SMEs purchase the technology that enables e-commerce, but they must invest in the education of staff to find out what needs to be done, and to keep up-to-date with changes in the technology and with a different way of doing business. Costs include software, set-up, training, implementation, integration of services, and engaging consultants to do what cannot be done in-house. The cost of adopting e-commerce is determined by many factors such as the size of the company, the customer base, the degree and types of services offered on an e-commerce site, the number and complexity of transactions, and internal integration necessary to support the online processes (NOIE 2001). Additional costs may be required for hosting web sites, maintenance and support, transaction or other fee-based costs, credit-card processing and data extraction fees (Kalin 1999: 49; Lu et al. 2001). The cost of developing a web site was quoted by a number of research studies as being high, and thus proved to be a significant

deterrent. Marshall and McKay (2001: 195) found that one third of their subjects had spent more than \$100,000 in establishing e-commerce in their organisation, while only one third had spent less than \$20,000. Nor has DCITA, a government department that provides information and assistance to SMES, offered a reassuring model with its own web site that cost over \$4 million (SETEL 2003d: 1).

### **Availability of capital**

A number of writers – such as Ah-Wong et al. (2001: 102), Bhide (1996: 128), Block (1991), Jennings (1994: 27), and Trombly (2000: 62-64) – have highlighted the need to have adequate access to capital to fund the adoption of innovation. A business with sufficient profits can either fund such investment internally or it can attract funds from external sources, but a business that is attempting to grow from a small base has little chance of making the required investment from its own resources and will often have difficulty in attracting funds, whether in the form of debt finance or equity finance (Fox 2000: 48-49). Block points out that:

In Australia the term ‘venture capital’ has become synonymous with high technology business start-ups and is now automatically associated with high risk investment providing long term and uncertain returns to investors (Block 1991: 35).

Since then the term has broadened to include less risky forms of investment, with more sources of venture capital now available to SMEs in Australia. For instance, CANNEX offers SMEs a selection of small business loans listed at their web site, [www.cannex.com.au](http://www.cannex.com.au). Australian Business Angels work primarily with businesses with turnovers of \$1 million to \$20 million, whereas other sources are listed on the web site of the Australian Venture Capital Association (AVCAL) web site at [www.avcal.com.au](http://www.avcal.com.au) (West 2000: 42).

There is clear evidence that high tax on capital gains dramatically affects capital available to entrepreneurs. In the United States where there has been a high level of venture capital available, innovations have flourished. However, in 1969:

The US Congress increased the maximum tax on long-term capital gains from 28 to 49% and to regulations concerning pension funds’ ability to invest (sic). This decision had a devastating effect on the amount of financial resources available for venture capital. ... After the new law took effect, the amount of venture capital dropped from \$171 million to \$10 million, a mere 6% of that available six years previously (Herbig et al. 1994: 41).

Pressure on Congress from various sources resulted in a reversal of the earlier decision and a further decrease in maximum capital gains tax to 20%, resulting in a rise of available venture capital to over \$1.4 billion by 1982 – eight times the amount of 12 years before (Herbig et al. 1994: 41). Australia has halved its capital gains tax – what impact is that likely to have on the availability of venture capital for innovation? The question of availability of capital is a complex one. It was not researched in this study.

### **Education and training**

One of the potentially most important areas of business development in an electronic commerce environment is education and training. This is what is attributed to have propelled Ireland to the forefront as a nation using e-commerce (*Ireland trains SMEs in e-business* 2002). It was access to higher education institutions in Great Britain that had been pivotal in developing SMEs that were ready to engage in e-commerce (Evans 2002: 963-964). Brown, of Small Enterprise TELcommunications (SETEL), speaking at the *SME E-Commerce Forum Taskforce July 2002*, said probably the most significant component in the uptake of e-commerce by SMEs is training, training both in technology and in management (Brown 2002: 26). Education and training are reciprocal in nature. Not only is it a major contributor to building up the infrastructure of skills upon which e-commerce develops, but it is rapidly becoming a business area within its own right. Accompanying the growth of e-commerce has been a concomitant growth in demand for programmers, web site designers and developers, broadband and telecommunications technicians, internet providers, database developers, business planners, financial support agents, legal advisers, and a variety of private independent consultants needed to provide and support the industry. As West points out, education is critical to the success of innovation diffusion. He quoted a large sample statistical study that examined the effects of adoption of innovation in 17 industrialised countries:

A one percentage point increase in the share of resources going to higher education increased the output of innovation by 11% (West 2001: 29).

The specialised technologies required to support e-commerce demand a highly trained and skilled work-force to be able to gain the greatest benefit from it, stimulating development of courses at a large number of educational institutions across Australia

(Wade 2001). In 2000 the Department of Industry, Science and Resources (DISR) listed under *Getting the Skills* a large range of educational programs offered by Australian universities in various aspect of e-commerce on its web site (Department of Industry, Science and Resources 2000). Gates with Hemingway (1999: 413) pointed out that some countries are held back from adoption because of a lack of college students' exposure to digital technology in their educational system. Users of the internet, whether they be consumers or operators of/within SMEs, need education and training to be able to use the internet and to remain up-to-date with changing technologies and how these can be used in their businesses.

As trading electronically involves a different mind-set in the way business is conducted, SMEs need to adjust to this. This adjustment is on-going as new opportunities are constantly revealed. Being able to take advantage of all of this requires constant and on-going education of all concerned. This education is an ongoing cost which must be borne by all businesses engaging in e-commerce. SMEs are not always willing to invest in education if key employees are missing from the business for a considerable time period, or the knowledge gained is not concrete enough to be put into immediate use (Calabuig and Jurado 2001; Kotwica 2001; Welsh and White 1981: 52; Yellow Pages 1998).

### **Security and privacy issues**

The internet was not originally conceived in a commercial environment, and many of the particular legal, administrative and technical elements required for trade and commerce have been slow to develop, or have developed in an unco-ordinated or chaotic fashion. Besides technical problems like bandwidth availability and network reliability, there have been serious problems in ensuring the security and privacy of commercial transactions on the internet. According to CIO Custom Publishing (2001: S18), 30-40% of internet savvy' consumers still prefer to send orders by fax when submitting credit card numbers. With 27 billion credit card transactions conducted annually, credit card spending is at its highest rate ever. Estimates suggest that 2%, or 540 million, of these transactions are conducted over the internet. Unfortunately, the boom in online spending comes hand in hand with an increase in e-commerce credit card fraud. The statistics say that e-commerce fraud is 10 to 20 times more likely than face-to-face, with some research claiming rates as high as 5-10%. The actual cost

truly shows the shortcomings, with companies like Expedia incurring a \$4 million fraud bill last year. (Caunter 2001)

Privacy is of concern both to consumers and to businesses concerned about privacy of customers' information. Security and privacy are inseparable. They have been seen as major issues in e-commerce by a number of researchers (Ah-Wong et al. 2001: 103; Bidgoli 2003: 206-212; Ihlstrom and Nilsson 2001: 173, 176; OECD 1997: 54; Quayle 2002: 1149-1150; Singh and Slegers 1998: 25-26; Subramanian 1999; Vassilopoulou et al.1999; Walczuch et al. 2000; Willis and Ding 2000; Yellow Pages 1998).

Concerns relating to security issues are in three main areas:

- a) Competitors (or hackers) could intercept offers while they are being transferred over the internet;
- b) Customers need a secure platform where they can log in to make changes to their orders; and
- c) SMEs must be able to guarantee the genuineness of payment by credit card – the principal means of online payment at present.

A significant advantage of using e-commerce is that it can be used to document the transaction trail in great detail, in the process providing consumer information to the business that can be used for future marketing purposes. Businesses must, however, protect the confidentiality of information provided in the normal course of a transaction, especially when they offer customers the ability to alter transactions online as is done in, for example, share trading (Dasgupta 1999: 144; Henderson 2002: 102-105). NOIE has set up a web site to help small business owners and operators understand e-security issues (2002a).

Businesses are legitimately concerned that their databases will be open to hackers. The cost of instituting firewalls and other protective devices can be too high for most SMEs to consider, but if they are to guarantee security to consumers it is a cost that must be borne (Ah-Wong et al. 2001: 103).

Any security system can be broken, and the worst intruders are often insiders. Probably the least effective way to instil public confidence in the security of networked transactions is to make a blanket assertion that networks are completely secure. Rather, confidence building is dependent upon maintaining the public perception that the levels of security provided for each type of data exchange are reasonable and adequate, that breaches can be detected quickly,

that corrective action can be taken, and that the lines of responsibility between transacting and intermediary parties are clearly defined (OECD 1997: 57).

The risk to consumers using credit cards is twofold. First, credit card details could be intercepted en-route to the trader and improperly used by a third party. Secondly, the business itself may improperly use the information. Many people are reluctant to give credit card details over the internet without any assurance that details will not be available to others, a concern not without a sound basis. For example, a study by the Gartner Group of Stamford cited attacks launched from within the former Soviet Union on as many as 40 e-commerce sites in the USA. The Federal Bureau of Investigation said stolen credit card information was probably sold to organised crime entities in Eastern Europe (Gartner Group 2001). However, crime authorities say that the problem is probably worse offline than online where dishonest employees physically handle cards.

In Australia, the merchant carries all risk for fraudulent purchases whereas the consumer and credit card company bear none. In the United States, banks have cooperated with each other to reduce fraud. One such method is with 'address verification' which covers the risk of fraud on the condition that 'purchased items are delivered to the verified address' (Ah-Wong et al. 2001: 103).

An alternative to the credit card is the smart card, which contains all the details of the holder. It can be credited with a certain amount of money and used as a payment method, similar to the 'pay as you talk' schemes adopted by many mobile phone companies (Ah-Wong et al. 2001: 103; Gagliardi 1995). For example, in Hong Kong, Octopus, a smart card, has been most successful in replacing cash on the high volume passenger transportation system (Poon and Chau 2001).

The use of security devices such as firewalls, encryption, smart cards, digital signatures and secure sites will all assist in reducing fraudulent financial transactions. A number of such security devices are currently being developed and trialled. Encryption, too, is proving of growing popularity. Along with digital signatures, encryption enables firms (and individuals) to transmit data safely over open networks. Although secure devices and sites are available, many people, both SMEs and consumers, are often unaware of their existence. For example, not many people seem to realise that if Secure Socket Layer (SSL) protects a site, then its unique reference locator (URL) begins with 'https' rather than with 'http'. The studies by both Gartner

and Ah-Wong et al. recommended that web users install firewalls (on their home computers) as more internet access moves from dial-up to broadband and always-on connections, and use credit cards with low credit limits for online purchases (Ah-Wong et al. 2001: 103; Gartner Group 2001; Subramanian 1999).

Interestingly, Auger and Gallagher, in reporting the results of a survey of a cross-section of SMEs engaged in e-commerce in the United States found that security concerns 'to be less significant a barrier in realising benefits than my have been highlighted in the trade press' (1997: 69). Their findings did not seem to be supported by other studies.

E-commerce in Australia between small business and government will be boosted by the development of a whole-of-Government framework to validate Australian Business Number Digital Signature Certificates, as have already been legitimised in the United States, and agreed to by Australian law-makers who approved the model law on e-commerce (Headen et al. 2000: 10; Jones and Johnston 2000: 8-9; Sneddon 2000: 37-42; UNCITRAL 2000). This will improve trust, integrity and confidence in the online environment and should reduce compliance costs for those small businesses that want to deal with government online (Hockey 1999: 5). Other issues of security include non-repudiation, authentication, integrity, availability, auditing, and authorisation.

EDI (or electronic data interchange), often over-looked as a possible solution by e-commerce practitioners, seems to offer a safer means of transferring financial data across communications. Of course, there are a number of reasons for this lack of uptake of EDI. It is expensive to install - a company must have sufficient volume of transactions to justify the cost. It requires purpose-specific equipment. It is best used in a situation between one business and another; and does not suit the open market channels provided by the internet (Ah-Wong 2001; 99; Calabuig and Jurado 2001; Clarke 2001; Farrell et al. 2001: 379-381; Gates with Hemingway 1999: 151, 219-220; OECD 1997: 24; Raman 1996: 18-21; *Web EDI* 2001). Issues relating to EDI are further discussed in *Section 2.6 Technical Infrastructure required to facilitate e-commerce*.

## Legal issues

Legal issues are closely related to security. Indeed, it is difficult to separate the two. Despite reassurances from a number of authors legal issues remain of concern to many SMEs (Barr et al. 2003: 14-18; Bidgoli 2003: 346-348; Cho and Clark 2000: 321-323; Hoyle 2001; *Security in a web-based environment* 2000: 42; Willis and Ding 2000).

E-commerce is difficult - even impossible - to contain within geographically defined trading areas and national regulatory and administrative borders. As electronic network facilities increase in sophistication, they tend to become oriented to an international trading context, but this surely is one of the major attractions of trading electronically. E-commerce facilitates the globalisation of business by providing more economical access to distant markets, and by supporting new opportunities for firms to increase economies of scale and scope by spreading their production and distribution assets internationally. Indeed, probably the most troublesome conceptual aspect of e-commerce is that it can be very difficult to define the exact location at which a transaction actually takes place, and hence the jurisdictions to which it may be subject. As the Sacher Report asks,

Where does an electronic transaction actually take place in terms of contractual obligations, assignment of liabilities and tax responsibilities? Where are companies that trade electronically registered and regulated, and to which legal regimes are they subject? How are rights in tangible and intangible forms of property to be protected? What happens when a transaction goes wrong – who has responsibility and liability? (OECD 1997: 43).

The non-territorial bounds and intangible nature of e-commerce highlight the inadequacy of existing law enforcement mechanisms that are still, for the most part, geared to tangible products and national legislation. The special characteristics of the commercial environment provided by the internet creates an urgent need for internationally agreed legal definitions as to where and when commercial transactions on the internet are deemed to have taken place. This then generates legal and regulatory considerations that have to be addressed. The Australian Government sees this problem as one of 'redress'. It agreed that a major objective in the development of e-commerce success is to develop an 'effective, speedy, accessible and inexpensive forms of redress in Australia that will meet the needs of Australian and overseas consumers' (Hockey 1999: 11).

The internet is a mine-field of potential legal concerns. For instance, firms are encouraged to develop web sites with an inadequate understanding of the domestic and international legal issues associated with having a presence on the internet. This lack of awareness or knowledge can result in firms facing expensive and time-consuming litigation. Zugelder et al. presented the major legal issues that may arise as a result of creating, maintaining, and protecting web sites. In particular, they provided managerial recommendations regarding consumer protection, defamation and disparagement, intellectual property violations, and jurisdictional issues for international internet marketers (2000: 255-258).

In 1997, the OECD recommended that governments needed to clarify legal definitions, practices and structure that pertain to commercial activities in the electronic environment, and

Seek multi-lateral agreements on critical legal matters, especially the laws regarding residency, agency, liability, auditability, control of databases, unauthorised use of databases and data protection (OECD 1997: 16).

Governments need to cooperate to provide the legal and statutory regulation underpinning which ensures the fulfilment of electronic contracts regardless of the jurisdiction in which they originate. Businesses are concerned about the jurisdiction and that contracts are enforceable in an environment that exists outside traditional national legal boundaries. Where appropriate, governments should adjust existing laws and regulations so that they apply equally to intangible as well as to tangible commercial transactions. They need to ensure that any future legislation regarding consumer protection laws and regulations are closely coordinated with developments in e-commerce so that both consumer and businesses are protected internationally (Ah-Wong et al. 2001: 103; Calabuig and Jurado 2001; Cho and Clark 2000; Clark et al. 2000; Hoyle 2001; OECD 1997: 54; 1997a: 15; Quayle 2002: 1158-1159; Willis and Ding 2000).

Earlier studies have argued that a patchwork of cyber-crime laws, with little international agreement on how to attack online fraud and theft, will give criminals the upper hand.

Lawbreakers can easily jump borders to evade law enforcement or to take advantage of more lax environments. This capability can turn a localized crime into one of global proportions (Gartner Group 2001).

In fact, Gartner argues that online consumers should not count on law enforcement and should instead take steps to protect themselves. In recognising that 'effective strategies to consumer protection be developed as part of the Government's overall strategy for the information economy' the Australian Government has taken steps to ensure that what is done in Australia is not only compatible with what is taking place overseas, but that Australia 'influences the emerging international rules and conventions for electronic commerce' (Hockey 1999: 3-4).

To help businesses meet their legal and consumer obligations, the Commonwealth Government has developed a model for best practice in electronic commerce (Treasury Department 2002), available at:

<http://www.ecommerce.treasury.gov.au/html/ecommerce.htm>.

This site appears to be of greater benefit to those SMEs that have already decided to adopt rather than those still in the process of deciding.

### **Time poverty**

One of the major factors holding back SMEs from adopting e-commerce appears to be lack of time – lack of time to find out about it, to learn how it operates, to hire consultants, and to arrange the purchase of necessary equipment and training needed while still meeting all the other demands of their business (Cromie 1989: 118, 127; PriceWaterhouseCoopers 1999: 12; Yellow Pages 1998: 34). SMEs are so busy just keeping their organisations operating that they do not have any time to spare for other activities, even when those activities could impinge on the success of what they do (Muecke 2000). Most small business managers are currently preoccupied with survival, with a vision tightly focused on the short term, and with profit, tax, competition and regulation requiring most of their attention SETEL, for instance, when asking SMEs throughout Australia for submissions relating to their use of telecommunications, received only four responses (Brown 2001). Many small business operators simply lack the time and energy to do other than to rush from task to task associated with keeping the business viable. It was this same lack of time that Peacock, when investigating the failure of small businesses, identified as a significant factor (2000: 7).

The major difficulty identified by SMEs in moving from being a conventional business to an online business was the time involved in setting themselves up as an online business (Yellow Pages 2001: 34).

More pressing priorities is another way of saying that they do not have time to adopt - (PriceWaterhouseCoopers 2000). This lack of time manifests itself particularly in an inability to consider the strategic direction of the enterprise.

Yet initiatives like a web page with transaction capability only make sense if they are considered and costed as part of a strategic planning exercise for the business as a whole (SETEL 2001b: 3).

Bhide (1994: 125) believed this 'lack of time' is a ploy used by entrepreneurs not to waste time in doing a thorough analysis of a new idea as 'by the time a new idea is investigated, it may no longer exist'. Associated with going online is not only the need to find out what is involved, but to learn how to incorporate it into the business, and then keeping up-to-date with constant and on-going developments as online trading opens up new possibilities and opportunities. All of this takes time which many SME operators feel they cannot devote away from running the business as it is. Quayle argued that SMEs generally lack not only equipment and time, but demonstrate an unwillingness to use other dot.com companies to develop their own e-commerce capability which would help solve their problems (2002: 1157).

In Australia adjustment to the Goods and Services Tax (GST) has been another significant factor increasing demands on time and negating the ability to consider strategic planning for the business as a whole. SETEL, in quoting a special report based on a survey of 1,800 SMEs, points out that the most significant barrier to SMEs becoming innovative is the tax system. SETEL believes that the SME sector needs substantial encouragement to become productively involved in e-commerce (SETEL 2001b: 3).

### **Strategic planning**

Although most SMEs have strategically planned their entrance into bricks-and-mortar business, most of them have not translated this same need for strategic planning to the online situation. Bhide said SMEs often start businesses to seize short term opportunities without thinking about long term strategy (1996: 123). Yet this view is not widely accepted. Other researchers believed that if a business were to succeed the need to plan strategically is as important if not more important when moving into e-

commerce. The whole environment is different, creating pitfalls and challenges that are quite different from the traditional forms of commerce. A large number of researchers into the barriers and inhibitors facing the successful adoption of e-commerce highlighted the need to plan strategically before starting (CIO Custom Publishing 2001; Damanpour and Damanpour 2001; Ernst & Young 2001; Marshall and McKay 2001: 203; McKie 1999; *The myths and misconceptions of e-commerce* 2002: 23; NOIE 1999c; Porter 2002; Quayle 2002: 1157-1158). Brown points out that SMEs must adapt their existing business strategies to accommodate the new techniques demanded by online business (2002: 23). They can do this only if they first plan strategically. McCue's study of 15 SMEs in Michigan in the USA strongly demonstrated the importance of developing a strategic business plan.

Despite the best attempts by e-commerce experts, in-depth training, constant analysis of constraints, and changing of web site content and other marketing techniques' SMEs were frustrated by the lack of return (McCue 1999: 28).

### **Lack of personal contact**

Many SMEs believe there is no substitute for the personal approach to customers, and that e-commerce is too impersonal, that there is a loss of the personal touch with e-commerce. Indeed, some businesses rely entirely on personal contact. Many also believe that word of mouth recommendations will be lost with e-commerce (Colvin 2001; De Witt 2002: 40; Singh and Slegers 1998: 29; Yellow Pages 1998).

Yet, others are of the opinion that they add customer value when they can answer requests at times that are more suitable to them (by using email), that is, avoiding bad timing. According to some, email is equivalent to the telephone regarding exchange of informal matters. They use the technology to overcome the lack of face-to-face contact (Ihlstrom and Nilsson 2001: 176).

### **Not suited to the business**

Business operators often feel that their business is not suited to the demands of e-commerce, that their business is of a local nature only, that e-commerce is too complex for their business, or that their business is of a nature that negates using e-commerce (such as a personal hands-on service) (Ihlstrom and Nilsson 2001: 177; Poon 1999b; Yellow Pages 1998). This often is part of the lack of awareness, not of e-

commerce per sé, but of the capability of what e-commerce can offer to their particular industry (Ihlstrom and Nilsson 2001: 175). If SMEs were more knowledgeable of how e-commerce could enhance their business operations – particularly if they had experienced broadband – then they may be more open to the idea of adoption (Tiernan 2003). Too many, it seems, see e-commerce as merely a means to selling products over a web site.

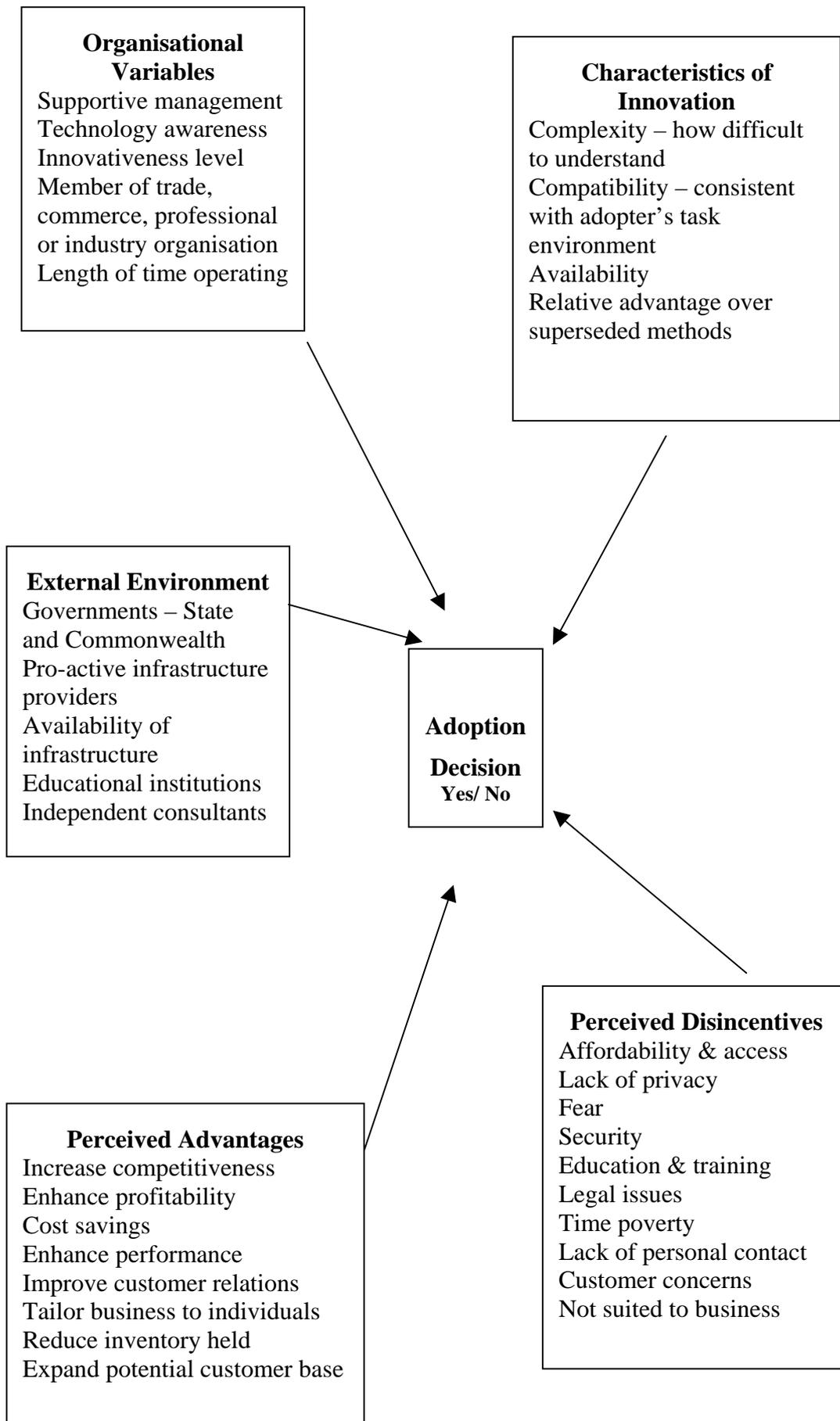
### **Deterrents not obstacles**

Begin and Boisvert (2002) investigated internal factors that can inhibit the successful adoption of e-commerce. Organisational culture and perceptions of people – both staff and executives – were considered important inhibitors or what they called inductors. If people were concerned about losing their jobs, there was little enthusiasm for the change, but if they had been encouraged to be innovative and saw the adoption of e-commerce as merely another challenge, then they were more likely to be supportive. It was thus important that management keep staff informed of the potential benefits to them in any change undertaken. Leadership was seen to be critical, as was the support of senior management. These factors are, however, only deterrents, and not major obstacles. There are avenues management can take to eliminate them – outsourcing, use of external consultants, training and development, restructuring, improved communication and recruitment. (Begin and Boisvert 2002: 24; Tan and Teo 1998).

### **Summary**

Fig. 1 summarises those factors that SMEs see both as advantages of adopting e-commerce, and those militating against its adoption. It also includes a recognition of other environmental factors that appear to impinge upon adoption which are discussed in following sections.

**Fig. 2.1 Factors affecting adoption of e-commerce**



## **2.5 Characteristics of the organisation**

### **2.5.1 The innovativeness of decision-makers**

The innovativeness of an organisation is also a factor in the adoption process, particularly for SMEs. Various researchers (Al-Qirim and Corbitt 2001: 142-143; Herbig et al. 1994: 39; Pai 2000; Parker 2000: 239, 241-243; Wang 2001) highlight the perspective that SMEs are more flexible and entrepreneurial than large corporations, with a better capacity to respond to changing customer demand, to adopt different forms of work organisation and to introduce new technologies, products and processes. Zimmerer and Scarborough define an entrepreneur as 'one who creates a new business in the face of risk and uncertainty...' (2002: 4). They have been at the core of those who establish SMEs. In other words they are more innovative:

Entrepreneurship, innovation and new ventures provide the fuel for the engine of the modern economy. The importance of these three elements cannot be overstated. Small firms produce two-and-a-half times as many innovations as large firms per employee. Small firms also bring innovation more quickly to the market. Small, new businesses have been the main driving force for the economic growth of the 1980s, contributing virtually all the new jobs born during that decade. Entrepreneurs who head these new ventures seek opportunities and innovations and often provide the resources for them to succeed (Herbig et al. 1994: 37).

Innovators do not, however, adopt without assessing the risks involved. SMEs are thus ideally suited to be innovative in the adoption of e-commerce. This point is discussed in more detail in Chapter Three, the chapter on theory.

### **2.5.2 Customer relationship management**

A factor proving of increasing concern in the online environment is that of customer relationship management (CRM) (Alwang 2000: 181; Daniel and Grimshaw 2002: 140-141; De Witt 2002: 39-40; Greengard [2001]; Janda et al 2002; Kalakota and Robinson 1999: 169-201; Kalakota and Whinston 1997: 317-347; Keen 1999: 48; Lewis [2001]: 24-29; Romano and Fjermestad 2001-2002: 61-64, 2001-2002a: 7-8). Customer relationship management (CRM) is being recognised as integral to the successful adoption of e-commerce. As a business attitude, customer relationship management is promoted by many different authors as something that needs to be addressed, especially in the online scene. Just because a business doesn't have shop premises doesn't mean that the regular rules of business do not apply. Consumers still

expect good products with reliable service and governments still expect businesses to comply with business laws and principles of good customer service (Abell and Black 2001: 6) APEC 1999: 34; Seminerio 2000: 53-55).

Although the OECD (1997a: 1, 8) maintains that it is difficult to quantify or measure the value of key elements associated with electronic commerce, such as convenience, variety and ease of access to information, Alwang (2000: 181) points out that there are electronic tools that can help measure some of the less tangible factors such as reliability, consistent transaction performance, or customer satisfaction. Cox and Dale (2001: 121-131) examined the applicability of customer relationship management determinants identified in a physical services environment to assess the services relating to e-commerce. The lack of human interaction during the online experience means that determinants such as competence, courtesy, cleanliness, comfort and friendliness, helpfulness, care, commitment and flexibility are not particularly relevant in e-commerce. On the other hand, customer relationship management determinants such as accessibility, communication, credibility, understanding, appearance, and availability are equally applicable to e-commerce as they are to physical services. Consumer perceptions of what makes good online customer relationships are performance (how well an online retailer does in terms of meeting expectations regarding order fulfilment), access (internet retailer's ability to provide a variety of products from anywhere in the world), security (relating to perceptions of trust in the online retailer's integrity regarding financial and privacy issues), sensation (interactive features of the e-retailer's web site) and information (quantity and credibility of information provided by the online retailer) (Barr et al. 2003: 6-10; Cox and Dale 2001: 129; Greengard [2001]; Janda et al. 2002; Rebel and Koenig 1999: 101-102).

Despite widespread agreement that customer relationship management has an impact on customer satisfaction, sales, profit, and loyalty, the significance of *electronic* customer relationship management and the various electronic customer relationship management features in influencing customer satisfaction has not been well researched. Research into the anticipated growth of e-commerce by a number of different researchers such as eMarketer, the Gartner group and Forrester Research has found that customer services are not up to a satisfactory level – which is proving to be a barrier to online retailing success. Interestingly, in a British survey of SMEs,

customer management rated among the lowest priorities of all business, with only new technology and e-commerce ranking below it in order (Quayle 2002: 1150). Were the SMEs surveyed simply unaware of the importance of customer relationship management in bricks-and-mortar as well as in the online environment? If a company wants to be successful in the future it will have to invest time and money in creating a strategy that will enable it to use best practices. This includes attention to quality customer relationship management features of the web site (Alwang 2000: 181).

Businesses have always been aware of the need to look after customers – it is much cheaper and easier to keep an old customer than it is to make a new one (Spiegel 2002: 26) - but this element of business is even more critical in the online environment. Customers increasingly want to be able to access information that is customised to their business profiles – what has been called personalisation of e-commerce. This type of web presence is not only richer, but adds value for end-users by saving their time and providing them with content that is of specific interest to them (APEC 1999: 37; Roehm 1999; Van der Poel 2000). Sheng (2001) and Zhuang (2000) both found that personalisation of services enhanced sales. Sheng found, too, that businesses dealing in physical products continued to use traditional ways to promote products, while intangible or information products tended to be promoted by means that took advantage of their intangible nature such as ‘bundling and versioning’. SMEs were also able to take advantage of savings through distributing and delivery costs, but they needed more enhanced personal customer services than physical products. The old saying that ‘90 percent of success is showing up’ does not hold true for e-commerce – if it ever did. As electronic business continues its rapid development, companies of all different types and sizes are learning that traditional values matter (Dutta and Segev 2001: 93-95). In today's environment, success depends just as much on sound business practices as it does in traditional commerce, which is why traditional organisations are emerging as contenders in the new economy.

Not only is customer relationship management a business attitude, but it is also a powerful software that must be managed with care. Businesses need to be careful that their relationship with the customer is not to become an automated one that merely benefits the company and not the customer.

### **2.5.3 Trust**

Trust in relationships is one of the most significant factors in successful customer relationships in the online environment. In the online environment customers lack the advantage of face-to-face judgements that can influence sales. Thus trust must be established in other ways. Branding, company name, quality of web sites, response to queries have all be identified as factors that influence the development of trust between an organisation and its customer base. APEC (1999: 39), Barr et al. (2003: 6-9), Castelfranchi and Tan (2002: 55-67), de Ruyter et al. (2001), McKnight and Chevany (2001-2002: 35-54), OECD (1997: 8), Reeves et al. (2002) and Steinfield et al. (2002: 96) all found trust was an important element in the success of online transactions.

In his doctoral study on *Determining the critical factors affecting the adoption decision of internet-based inter-organisational information systems*, Soliman (2000) concluded from the results of his analysis that out of several factors included in the study, trust was the most important factor that significantly affected the adoption decision of internet-based inter-organisational information systems. Other factors were competitors' pressure, establishment costs, and perceived benefits.

### **2.5.4 Lack of awareness of SMEs themselves**

NOIE'S claim in *Taking the plunge* that SMEs are aware of e-commerce (2000: 1, 3) was not supported by other researchers. Indeed, despite the wide-ranging publicity given to e-commerce through the media, government promotion of it and the benefits widely attributed to its adoption, a surprising number of studies show that SMEs are still largely unaware of what e-commerce actually means, what it entails, and the potential benefits to their particular business (Anthony et al. 1999: 263-266; APEC 1999: 34; AUSe.NET 2001, 2002; Brown 2002: 19; Ihlstrom and Nilsson 2001: 175; Lawrence 1997; OECD 1997: 24, 1998a: 16, 18; Papandrea and Wade 2000: 4; Papazafeiropoulou et al. 2002: 233-243; Quayle 2002: 1155). The issue of awareness was, according to the OECD, one of the five most significant barriers to the adoption of e-commerce for SMEs (1998a: 18). As early as 1997 the OECD flagged the lack of awareness as of major concern, and recommended that governments, in consultation with industry,

Work to reflect the rapidly changing professional and skills requirements of the electronic market-place in education, training and employment programs (OECD 1997: 15).

SMEs for the most part appear curious about e-commerce and its possibilities, but do not always see how their particular businesses could benefit. Some disguise their lack of awareness in a belief that it is not appropriate for their particular business or that most of their customers are not ready for e-commerce. There is an overall lack of awareness, but, in general it seems SMEs are eager to raise their level of knowledge about e-commerce and the potential benefits it can offer (Colvin 2001; Yellow Pages 1998). Buckland (1995), in her study of the use of IT by SMEs, found that lack of awareness also contributed to low use within the firm – a situation similar with e-commerce.

The level of awareness and understanding about e-commerce and its general benefits to business is, however, increasing amongst SMEs. Many businesses use the internet daily in their business operations. However, many businesses, especially small businesses, are resistant to actively engaging in e-commerce, specifically buying and selling over the internet. This resistance reflects a limited appreciation of the benefits to business of moving online as well as concerns about the cost and process of doing so (AUSE.NET 2000: 3).

The lack of understanding about business opportunities presented by e-commerce is rampant among those who have not yet adopted (Anthony et al. 1999: 264; Lawrence 1997: 594). The rapid growth of electronic commerce technologies and practices has created a tremendous need for awareness creation for organisations which seem to lack the necessary information about technology, business practices, investment cost and human capital. This situation was supported by the Quayle study of SMEs in Britain which found this lack of awareness was accompanied by lack of understanding of how to implement e-commerce, lack of skills amongst the workforce, and price of the technology (2002: 1155, 1157-1158).

What approaches should be used to overcome the lack of awareness?

AUSE.NET is an industry-led, not for profit, vendor neutral, independent, national initiative, established in partnership with governments across Australia to foster awareness of electronic commerce among Australian SMEs. To overcome SMEs' perceived lack of knowledge, AUSE.NET has developed a series of three hour face-to-face business expansion workshops to help small businesses understand the 'why' of e-commerce and why it is important to their business survival. AUSE.NET workshops

can give SMEs a set of business decision support tools and an action plan to move forward (AUSe.NET 2001, 2002: 1).

Although a number of similar initiatives have taken place in Europe, they have failed to produce the expected results. Papazafeiropoulou et al. describe how a project funded by the European Commission - Wide Electronic Awareness Network (WeCAN) - defined and evaluated a number of awareness models in electronic commerce in order to support organisations involved in awareness creation such as chambers of commerce, consulting companies and higher educational institutions (Papazafeiropoulou et al. 2002: 235-243). Papazafeiropoulou et al. found that European SMEs in general did not seem to realise the business opportunities offered by e-commerce. Awareness seminars have been provided for Australian SMEs by Commonwealth and State Government agencies (ACT Government 1995; NOIE 1999c). It remains to be seen how successful these strategies will be. Will they be any more successful than what has been done in Europe?

Country of origin (where a company is located) is also a factor. If infrastructure is not available or people (both executives within the company and their customers) are not familiar with the concept of e-commerce, adoption of e-commerce will be delayed. Not only must potential customers be computer-literate but they must also be internet-aware. Australia is considered among the world leaders in readiness to adopt e-commerce – previously noted in *Section 2.3.2 Use of e-commerce technology* (NOIE 1999a).

### **2.5.5 Industry in which SMES operate**

NOIE (1999a; 1999d: 12-13) pointed out that adoption was found to be positively related to the industry in which a business was engaged, with computer and office equipment being at the top of the list. West (2001: 38-39) found that ICT-related industries were leaders in adoption. Others that were moving up the scale were companies in pharmaceutical, publishing and textile industries, with education, banking and finance, business services, and media and entertainment all expected to be positively affected by the adoption of e-commerce. The types of products and services that are suitable for selling through the internet also dictate the type of industry that will more readily move into online sales transactions. Such products are those that have a low cost, are frequently purchased, have intangible value

proposition, can be easily moved across the internet (such as entertainment, online games including gambling, music, software or documents, travel services, entertainment and finance) and/or are relatively high on differentiation (Adey 1999: 61-64; Dasgupta 1999: 137; NOIE 2000a: 32; OECD 1997: 11-13, 1997a: 1, 4; Parker 2000: 247-248; Phau and Poon 2000; Steinke 1999: 210-211; Whiteley 1999: 19-20).

It appears that smaller companies, regardless of the industry in which they operate, that is, SMEs with lesser availability of resources – personnel, financial and technological – are slower to commit resources to the adoption, yet at the same time they are readier to investigate and consider adoption of innovations (Azzone et al. 2001: 131; Colvin 2001; Daniel and Grimshaw 2002: 135; Daniel et al. 2002: 263; Poon 1998a).

## **2.6 Technical Infrastructure required to facilitate e-commerce**

The technology of e-commerce depends on the existence of a reliable infrastructure of computer networks and telecommunications (Auger and Gallagher 1997: 60; Keen 1999: 48; La Rovere 1998: 1-4). Rai et al. point out that it is the reliability of technology that will have the greatest influence on its adoption (1998: 97, 103-105). Jastrow has written extensively on the negative effect and cost of what he calls ‘outages’ on businesses themselves, on clients and on trust (Jastrow 1999, 1999a; 1999b). Infrastructure used to support electronic business processes and conduct electronic commerce transactions includes hardware, software, telecommunication networks, support services, and human capital used in electronic business and commerce. The simplest form of communication can be carried out over ‘plain old telephone technologies’, but large volume e-commerce needs technologies that can support the rapid transmission of large bodies of data (Phillips [1998]: 9). Grimes, writing of rural SMEs located outside the main centres of the European Union, pointed out that one of the major barriers preventing the involvement by rural SMEs

... in exploiting the economic potential of the digital economy ... is the difficulty of obtaining affordable high-speed internet access in remote locations in this era of liberalized telecommunications markets (Grimes 2003: 174).

Tiernan (2003) maintains that SMEs will be less constrained by the types of products they can sell online once they and their customers both use broadband.

With an always-on connection, people don't feel they have to get right off the line, and they're willing to look at more screens of information, increasing the average time spent researching a product (Tiernan 2003).

Grimes (2003) found broadband telecommunications is preferable and, indeed, necessary for large businesses with high volume needs and dependent on rapid and reliable response time. Yet in contradiction to his findings, as the study into rural small businesses by Papandrea and Wade (2000) indicated, it is not essential for small businesses. Papandrea and Wade found many small businesses engaging in e-commerce in quite isolated parts of Australia with extremely slow (dial-up) modem rates. The nature of these small businesses, however, meant that although they used the internet regularly, they did not require constant access to it. Nor did they have high volume traffic. Thus, although broadband access is desirable, it is not essential unless a business has a high volume transaction need. Or it may be that SMEs do not demand broadband access because they have not experienced it, and remain unaware of the benefits that can be achieved by using always-on, rapid access to the internet (Brown 2002: 23).

Millions of dollars are currently being spent by infrastructure providers and telecommunications companies such as TransACT Communications in the ACT to provide broadband services to the large numbers of potential subscribers (ACTEW Corporation 2000; Quinlan 2002; TransACT Communications Pty. Ltd. 2000; Zwass 1996). This is part of a targeted communications future for all small towns (with more than 1,000 people) in the Australian Capital Region (ACR) which includes provision of a broadband communications service initially providing internet service at centres, and later reticulated directly to households and business (NatTel 1999: 6). SMEs and their customers must first experience the service to appreciate it. Once they have experienced the benefits from 'always-on, high speed connectivity', they will demand it as the norm (SETEL 2003c: 3; Tiernan 2003). In the ACT the rollout of TransACT broadband capacity provides opportunities for applications developers, service providers, government, industry associations like SETEL, and consumers alike. TransACT is presently building the infrastructure, which allows different service providers to purchase from TransACT the broadband channel that will allow the distribution of different services ranging from internet access to video on demand. Speaks (2000: 70-71) described a fixed wireless solution to the problem of providing broadband services that was being trialled in San Jose, California, a solution that

provided both bandwidth and speed. He saw this as a viable option to other broadband services, but the company that was providing it appears to have been part of the collapse of dot.coms. Nothing seems to have been heard of it since 2000.

Government also has a role to play in the provision of ICT infrastructure. SETEL works closely with government to assist in the development of policies and strategies that will enhance the provision of telecommunications to SMEs, but provision of adequate infrastructure is only one part of the picture. SETEL suggests four ways in which government can support SMEs in their successful adoption of e-commerce in the provision of effective telecommunications:

- To promote competition that delivers real benefits to consumers;

- To regulate to protect consumers and set standards;

- To offer incentives to encourage innovation and investment, in, for example, broadband services; and

- To provide funding to support, for example, the provision of better information to small business consumers about telecommunications products and services SETEL (2001a: 3).

In addition to the above, Tiernan (2003) suggested that government should also engage in the education of SMEs in using broadband services. Broadband connections appear to increase the volume of goods sold and provide for more informed consumer purchasing behaviour. He reported that Forrester Research had found a greatly increased volume of sales by SMEs once they have adopted broadband services. According to a 2000 study conducted by AC Nielsen and netRatings,

- Users with high-speed internet access, on average, viewed 130% more web pages per month and visited the internet 83% more times than those who accessed the internet using 28.8- or 33.6-kbps modems (Salamone 2000: 8).

At June 2002, an estimated 72% of Australian businesses with employees (some 474,000 businesses which includes large corporations as well as SMEs) were connected to the internet, but very few had high speed access. Of these 474,000 businesses:

- 86% accessed the internet via dial-up services;

- 7% via DSL [Digital Subscriber Line];

- 7% via cable modem;

- 4% via ISDN; and

2% via other high speed services (NOIE 2003a).

The same source indicated that there is a direct inverse relationship between the size of a business (in terms of number of employees) and the propensity to access the internet via broadband services. Only 45% of online businesses with 100 or more persons accessed the internet via dial-up services, compared to 88% respectively for micro businesses (1-4 persons), small businesses (employing 5-19 persons) and 74% for online businesses employing 20-99 persons. This suggests that in this study, approximately three quarters of the SMEs will have access to and use broadband.

Companies are increasingly recognising the important role speed plays in web users' online activities. Slow download will not be tolerated by customers. E-commerce is dependent on high quality computer and telecommunications technology. Broadband access is no longer an option, but a necessity for telecommuters, business partners and their e-commerce customers. Jones, writing of the US where there are increasing numbers of smart buildings providing a large range of connectivity and services, pointed out that once companies have used broadband and related services, they continue to demand them.

Many of the landlords here in New York city almost have to provide wired buildings, not just for the dot.com companies, but for most companies which are so reliant now on the internet for communication (Jones 2000: 30).

Online delivery can be a problem with those intangible products - such as entertainment and information services - which require adequate bandwidth. The availability of broadband access to telecommunications is expected to improve the position of SMEs engaging in e-commerce. Surprisingly, household use of broadband facilities appears to be increasing at a faster rate than business use.

AC Nielsen research suggests that Australian homes are gradually shifting from narrowband to broadband services. In the period June 2001 to March 2003, the percentage of home internet users accessing the internet through broadband services in Australia increased from just 5% to just over 13%, an increase of more than 100%. A significant upward shift in the level of home broadband users in Australia has been particularly evident since June 2002. This trend reflects increased levels of connectivity for technologies such Digital Subscriber Line (DSL) and Asymmetric Digital Subscriber Line (ADSL) technology, and indicates an increasing level of awareness of the benefits of broadband services within the community (NOIE 2003a).

More should be done to make broadband access available to consumers here in Australia. The Commonwealth Government has undertaken a national effort to extend

broadband across regional Australia to make it available to both householders and businesses (NOIE 2003b). Regional SMEs should benefit from this action.

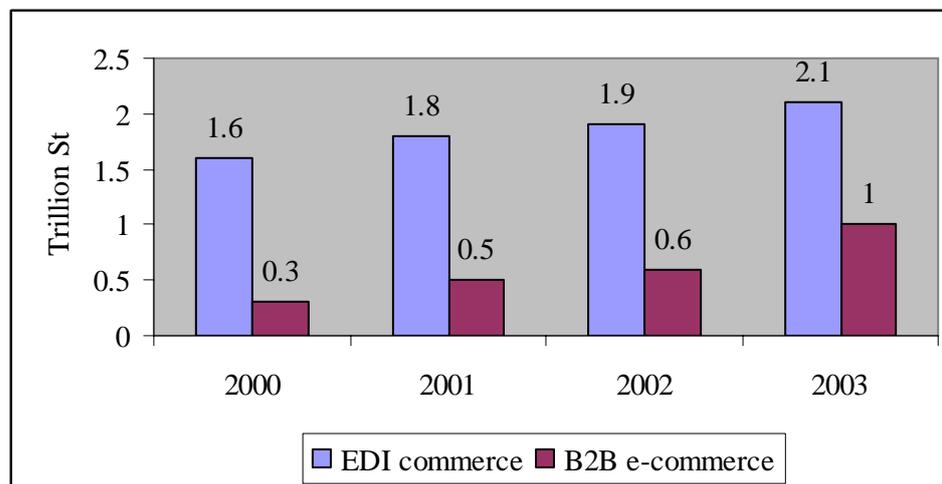
Another technology that has received little publicity is that of EDI.

EDI is computer-to-computer communication of business messages in standard codes and formats. These systems allow the direct, automatic and instantaneous input of messages to transaction processing systems without human re-keying. This system, used extensively for contracts, invoices and ordering between component suppliers and manufacturers, is being extensively integrated within the electronic commerce models converging around the internet (NOIE 2002c: 61).

During the 1960s, EDI solutions were developed to automate B2B transactions. EDI is oriented specifically to the exchange of highly structured accounting and procurement data, limiting its use to specific kinds of transactions. Implementing EDI resulted in direct computer-to-computer exchanges of information which saved time and reduced errors.

Fig. 2.2 illustrates how important EDI is as a means of transferring data securely world-wide (CIO Custom Publishing 2002: 1-2). (Values are in trillions of Pounds Sterling.)

**Fig. 2.2 World-wide EDI commerce and B2B e-commerce 2000-2003**



It is still used extensively in the inter-corporate environment, but, despite NOIE's assertion that it is 'being extensively integrated with the electronic commerce models converging around the internet' (NOIE 2002c: 61), less often in the B2C environment. In the European Union, for example, in 1997 only about 40,000 firms were regular EDI users, although 'the user base was growing at ten to fifteen per cent per year'

(OECD 1997: 24). One of the main reasons for the low uptake of EDI has been the high implementation cost as well as the specific and limited nature of its application. Businesses had to use expensive leased telephone lines and proprietary software.

Those firms that had previously used EDI were far more likely to move to online ordering and payment systems than those that had not used it. EDI still accounts for the majority of B2B commerce today, but certainly not for B2C. This is bad news for many SMEs (especially suppliers) who, unable to afford the most up-to-date in EDI technology, perhaps stand to gain the most if big companies strongly embrace and adopt internet market places (Bidgoli 2003: 156-175; Kalakota and Robinson 1999: 310-311; Reeves et al. 2002: 16; SeeBeyond Technology Corporation 2001: 3). EDI has limitations, including an inflexible format that makes it difficult to use for any but the most straightforward transactions. Many small companies have never adopted it and are unlikely to do so because of its limitations which include its lack of ready acceptance by firms engaging in B2C, its high cost, its limited accessibility, rigid requirements, closed world, and that it provides only partial solutions to the problems it aims to fix (Kalakota and Whinston 1997: 379-380; Varon 2001).

## **2.7 External influences**

### **2.7.1 Government initiatives - policy, legislation and aid**

Governments in general widely promote the benefits of e-commerce for SMEs. Several quotes in *Chapter One Introduction* have highlighted the Commonwealth Government's position. Grimes pointed out that national benefits accruing to e-commerce include reduced government bureaucracy, increased national competitiveness, and higher economic growth. He said these should encourage national governments to formulate appropriate tax and subsidy programs to encourage SMEs to adopt e-commerce (Grimes 2003: 174).

The role played by government can be crucial to the success of SMEs' adoption of e-commerce. As Lombardi said:

E-commerce will be the engine of economic growth in the 21<sup>st</sup> century, if allowed to operate without government regulation. One model predicts maximum potential of \$3.2 trillion. But slow business adoption and government interference could hold the market at \$1.2 trillion (1999: 19).

Alternatively, government can also hinder that success. Most of the current legal, taxation and regulatory mechanisms in place do not accommodate the uniqueness of e-commerce. They were conceived in an era before the advent of advanced electronic communication systems. Frameworks of commercial policy, law and regulation are overwhelmingly oriented to trade in tangible goods. In addition, they are national in orientation. Electronic commerce transcends national boundaries, and it tends to accentuate the intangible aspects of commerce. This presents major policy challenges for government, especially where the enforcement of legal and regulatory provisions are concerned. As early as 1997, the OECD raised a number of issues that governments and business needed to address so as to foster confidence and trust in electronic commerce such that new opportunities could be exploited to maximise economic and social benefit. Matters of particular importance included consumer protection and consumer confidence, competition, financial and payment systems, taxation, intellectual property rights, security, legal safeguards against criminal activities, dispute settlements mechanisms as well as other emerging requirements that will stem from the regulation and development of the electronic and non-electronic infrastructures and the social and cultural implications of e-commerce (OECD 1997: 11-12).

The Sacher Report (OECD 1997: 66-67) suggested an agenda for government action. It underlined the responsibilities of governments in providing appropriate regulatory frameworks while adapting their own administrative procedures and processes to remain tuned to the new developments promised by the emergence of the electronic market-place for renewed economic growth, expanded opportunities for consumers, new commercial activities, and new jobs.

Government rules and regulations as well as taxation laws remain among the main areas of contention noted by SMEs (Gibbs and Kraemer 2003: 17; OECD 1997: 16-17, 43-46, 52-53; Primus Telecommunications 2001; Swatman 2000). Taxation is an area of concern to government. As it watches increasing numbers of sales go online it sees its revenue base diminish. Thus taxing of online transactions is under consideration in a number of jurisdictions. Marsh (2001) researched the effect of taxing online transactions. He found that the case is double-barrelled. Those who argue against taxing e-commerce assert that its introduction would do irreparable harm to the growth of the internet as consumers would return to bricks-and-mortar

retailing. Those favouring a tax cite concerns of reduced government revenues due to decreasing bricks-and-mortar sales, with a resulting decrease in availability of funds for the provision of public good, as well as issues of equity.

It can be easy for government intervention to stifle online initiatives if taxation is not done in a manner that facilitates business. For instance, the Spanish government has decreed that all entities – commercial or otherwise – must register with it. The registration fee (a tax by another name) is apparently quite substantial, and has forced many web site owners who had only minimal commercial activities associated with sites that were largely informational to withdraw from the internet. Not only has this been a source of contention, but the registration enables the government to monitor the content and traffic of the site, infringing privacy rights. Opposition to the law has likened it to the censorship imposed by China (*IT registration in Spain* in 2002; Personal communication with Chinese post-graduate student). In 1999 the European Commission proposed changes to the European Value-Added Tax (VAT) system that would require non-European Union companies to collect VAT on sales of electronically delivered products and services to European Union customers. Not only would this require very close cooperation between participating countries, but it would require that a system be put in place that would avoid double-taxing and possible cheating. These rules and regulations are still evolving (Bidgoli 2003: 350).

The uptake of innovation in businesses of all sizes is directly influenced by the local or national taxation climate. A stimulus to new business development is through the establishment of an environment favourable to entrepreneurial activity. Herbig et al. (1994: 42) pointed out that government regulation and taxation are major constraints to entrepreneurship and innovation. Although it has long been recognised that political forces affect the economy, their taxes and regulations also affect the adoption of innovation by commercial organisations, thus further, but indirectly, affecting the economy.

Making and implementing policy in itself is not enough; the policy must be productive. The implications of public policy for e-commerce are not yet fully understood. Much analysis remains conjectural since e-commerce is such a new phenomenon. An increasing amount of research has been conducted on the degree of penetration of e-commerce in different regions (Abell and Black 2001, Abell and Lim 1996 and Al-Qirim and Corbitt 2001 in New Zealand; Ah-Wong et al. 2001 in the

European Union; Grimes 2003 in rural European Union; Ibbotson and Smyth 2000 in Ireland; Ihlstrom and Nilsson 2001 in Sweden; Lewis and Cockrill 2002 in Wales; Pracy and Cooper 2000 in the Illawarra; Lawrence 1997 in Western Tasmania; Lu et al. 2001 in New Zealand, MacGregor and Vrazalic 2004 in Wollongong and Sweden; PriceWaterhouseCoopers 2000 multinationally; Quayle 2002 in the United Kingdom, Van Beveren and Thomson 2002 in the Central Highlands of Victoria, and Walczuch et al. 2002 in the Netherlands) but, as yet, analyses of the effect of policy are in short supply. Although the government in Britain has funded national research on e-commerce and has launched a series of measures for promoting e-business in recent budgets, little research has been conducted on the effectiveness of current policies for promoting e-commerce at the local level. This is a serious omission since it can be cogently argued that many of the key interventions are made at the local level, if not always subject to local influence (Evans 2002: 961-973). Australia, although it has developed policy, is also lacking in evaluation of that policy.

The first step in assisting SMEs in their adoption of e-commerce is to develop policy that can then be legislated. The Commonwealth Government accepts it has a responsibility to support and encourage small businesses to explore all the opportunities that e-commerce offers. For example, through enactment of the Government's *Electronic Transactions Act* 1999, Government agencies will increasingly deal with their suppliers electronically, making it easier for smaller businesses to trade with Commonwealth agencies. This Act provides suppliers with information and learning tools to ensure they are able to trade with government agencies (NOIE 2002b, 2002g). Government is also addressing other issues to promote wider adoption of e-commerce, such as common interfaces to the major small business accounting packages (Alston and McFarlane 2001). The National Party policy statement, *Getting on with business*, commits the Commonwealth Government to provide increased whole-of-Government support to the small business community. This, in their view, 'will help small business build upon the Coalition's economic achievements including record low interest rates, low inflation and lower taxes' (National Party of Australia [2001]). In addition, the Commonwealth Government has been working with industry to develop an integrated and targeted package of e-commerce information and learning tools, and has allocated \$6.5 million as part of this. These resources have been allocated specifically to address many of the information gaps small businesses are currently exhibiting and explain the business

case for going online and making the most of e-commerce opportunities (DCITA 1999).

If the potential benefits of e-commerce are to be recognized, the development of an effective consumer protection environment is essential. In recognition of this, the Commonwealth Government has developed *A policy framework for consumer protection in electronic commerce*. Its vision is to empower Australians to be at the forefront of global commerce, both as online consumers and as online traders. 'Australia will establish a reputation around the world as a centre of excellence for business to consumer electronic commerce' (Hockey 1999: iii).

Its basic principles include providing protection for consumers while promoting the availability of the choice, information and redress necessary to ensure that consumers are able to make their own decisions. ... We are striving to provide an optimum environment of stable but flexible regulation that will benefit both business and consumers. The right regulatory balance will ensure that growth and innovation in electronic commerce is not stifled (Hockey 1999: iii).

This policy framework addresses five key issues:

- **Information.** Business must supply enough information in the online interface so that consumers can make informed decisions. This will usually require traders to supply more information than in conventional transactions...
- **Payment.** The success of e-commerce is dependent on the availability of secure online payment mechanisms. Research (already cited) shows that this is one of the areas of greatest concerns to consumers...
- **Redress.** The cross-border nature of e-commerce means that access to redress for consumers is often very limited. The Australian Government, as a matter of policy, plans to develop other dispute resolution mechanisms that deal exclusively with disputes arising from online transactions. It also plans to work with other countries to develop international redress mechanisms...
- **Jurisdiction.** There is currently no international agreement on how to determine the appropriate jurisdiction for electronic commerce transactions. The Government will continue to make a significant contribution to international discussions on this issue to promote international consensus...
- **Privacy.** The technology used in e-commerce increases the ability of businesses to collect consumers' personal information. The Government will develop legislation to strengthen and support privacy protection for individuals engaging in e-commerce in Australia (Hockey 1999: 1-12).

The policy has been developed. It remains to be seen just how effectively it is implemented. In recognising the importance of getting more small businesses online

and engaged in e-commerce, including sophisticated online purchasing and payments and online trading with government agencies, the Commonwealth Government announced a grant of \$13 million extension to the Information Technology Online Program (ITOL) in the Government's Innovation Statement, *Backing Australia's Ability* (Alston 2001b). The ITOL Program aims to accelerate the adoption of business-to-business e-commerce solutions, especially by clusters of small business. This is in addition to the \$6.5 million initiative aimed to accelerate the uptake of e-business by small business and to facilitate online access to Government purchasing.

As an indication of its commitment to encouraging the expansion of IT within the country, and thus indirectly an associated expansion of e-commerce, the following list, taken from the DCITA web site, demonstrates the range of e-commerce-related projects currently being supported by the Commonwealth Government:

- Networking the nation \$250 million
- Building additional rural networks \$70 million
- Internet access fund \$36 million
- Remote And Isolated Islands Fund \$20 Million
- Mobile phone coverage on highways \$25 million
- Expanded mobile coverage in SA, WA and Tasmania \$3 million
- Launceston broadband project \$15 million
- Telecommunications consumer representation grants approximately \$630,000 a year
- Telecommunications research grants approximately \$90,000 a year (DCITA 1999).

Regardless of the efforts of the Commonwealth Government, one government on its own cannot provide all the support and protection needed by businesses operating in the online environment. Governments must act in concert with one another, and with private sector users and suppliers of e-commerce facilities, and industry advisory boards such as the Micro and Small Business Advisory Board to create a commercial environment that is responsive to technical change.

### **Business incubators**

The establishment of business incubators has been another way in which different levels of government have been proactive in encouraging the adoption of e-commerce. In 1998 The Commonwealth Government established the Building on Information Technology Strengths (BITS) Incubator Program. This government-

sponsored program seeks to build the strength and competitiveness of Australia's IT industries by increasing the rate of new SME formation in the Australian ICT sector and encouraging links and networks between participants. The justification for government support of incubators relates to:

Their longer-term cost-effectiveness, and

The systemic market failures that impact on the survival rate of new technology-based firms.

In addition, most businesses that begin in incubators remain in the region where they started, so business incubators are good for local and regional development (Newton 2002).

In the BITS Program, some \$76 million has been provided across ten incubator centres, over the four years of the program. The incubators incorporate a structured business growth program - including access to various types of early stage finance, making use of an experienced board, management team and advisory panels, and providing business coaching and mentoring and channels to markets and international partnerships. While each incubator operates its own unique model, all BITS incubators provide financial support through equity investment, business skills development, marketing and sales advice and generally act as mentors for start-up ICT businesses. The long-term aim of each incubator is to prepare start-ups for further investment by the venture capital community, investment bankers, and for expansion into overseas markets.

Incubators are also emerging at the local level where they seek to speed company growth and to provide an innovative approach to economic growth and development. Through the provision of a variety of services and support (such as secretarial and administrative services, facilities support, business expertise – management, marketing, accounting and finance) to start-up and emerging companies, business incubators are designed to assist the development of new firms, to stimulate innovation, and to accelerate the commercialisation of new technologies (Herbig et al. 1994: 44). The ACT government has also been quite pro-active in establishing such business incubators including the ones at Downer, Narrabundah and Erindale, as well as the technology park at Fernhill. In addition it has established its Knowledge Fund to assist the commercialisation of innovations. All of this has helped create an environment within the ACT favourable to the establishment of new businesses and the adoption of innovation such as the adoption of e-commerce. Perhaps these

initiatives could be duplicated in other areas anxious to develop the establishment of innovative ventures as is happening in the Illawarra region (Pracy and Cooper 2000: 4).

The ACT government has long been active in providing assistance to SMEs. For instance, it has established both an Office for Small Business, and a Small and Micro Business Advisory Council (ACT), and has supported the Micro and Home-based Business Association (MHBA). The ACT government has funded a number of seminars directly aimed at SMEs to educate them about the benefits, pitfalls, and processes involved in adopting e-commerce. At these seminars various speakers spoke of the advantages of e-commerce, of the ways in which it could be adopted, and gave a number of case studies of successes. Even though these seminars were very well attended, many SMEs still did not consider making online commerce an integral part of their business strategy (ACT Government 2002).

In collaboration with NOIE, the ACT government has also established an online Business Gateway which can serve as a one-stop shop for SMEs looking for assistance in going online. It provides a direct link to NOIE's report, *Where to go? How to get there 2000*, which details associations that allow businesses to readily access a network of internet and e-commerce personnel. Listed in the report are web sites of associations which can assist, such as the Australian Information Industry Association which has information about regulations, internet industry forums and seminars. Others offer investment capital and opportunities, loyalty products, fulfilment services, mobile internet trends and e-commerce events, online auctions, supplier relationships, vertical markets, recruitment and training, plus a multitude of other services (Doukidis 1999). Much of the advice to encourage SMEs to go online is provided online. SMEs need to be online already before they can access it so it is hardly surprising that SMEs have not been hugely influenced by it. Yet, despite all of these initiatives aimed primarily to assist SMEs to go online, many by government, the Yellow Pages (2002) found that there has been a decrease in support for the government by SMEs.

Support for the ACT Government fell significantly during the quarter. The issue of a lack of understanding of the needs of small businesses appeared on the 'radar screens' of ACT businesses for the first time (Yellow Pages 2002a: 1).

SMEs are becoming increasingly over-whelmed by government demands in operation of their business. For instance, tax and regulations have been frequently identified as

being the biggest obstacles SMEs face in the conduct of their business. Yet, for all the rhetoric from government about simplifying such matters, the situation has become worse, not better (Primus Telecommunications 2001; Yellow Pages 2002a: 1). Shepherd, at the launch of *Yellow Pages Business Survey*, pointed out that surveys show that investment incentives and resolution of tax issues will help reduce disincentives to SMEs (2002). One of the key strategies of the current Commonwealth Government in Australia is to promote a dynamic entrepreneurial culture by improving the total business environment for SMEs. Development of appropriate policies and implementation of those policies will all help achieve this.

### **2.7.2 Financial institutions**

Integration of electronic payment into the buying process was forecasted by Zwass (1996) as early as 1996 as an essential stage in the hierarchical development of e-commerce. If payment for online transactions cannot be effected online, e-commerce cannot flourish. Online payment is being used. For instance, Jacobs reported that 45% of ACT businesses used electronic banking or Electronic Funds Transfer Point Of Sale (EFTPOS), a rate much higher than the national usage of 34% (2000: 118). However, security of payment of transactions across the internet has always been of concern to businesses of all sizes. Yet, just as mobile commerce is minimising the importance of security to get applications in the hands of users, so too did e-commerce initially. Reaching the market had been more important than security.

It's a question of how much business you think you're going to lose by having people break into the system versus how much you think you're going to lose by not providing the capability at all (Du Bois 2000: 1).

In other words, security was considered less important than gaining customers. Cameron and Joyce (2001) surveyed SMEs in the Geelong area to find out how they used electronic banking. They looked at why SMEs had not instituted electronic banking into their e-commerce processes. As they had only 12 respondents in their study using electronic banking, the findings cannot be universally applied, but it was clear that the use of electronic banking was closely allied to use of technology generally. Business-to-business commerce has been supported by the security of EDI, but B2C has been largely ignored (Raman 1996: 18). The cost of installing EDI has been prohibitive for most SMEs (Calabuig and Jurado 2001; Clarke 2001; Lawrence

1997: 587, 593; Pai 2000), but Raman (1996: 21) pointed out that EDI is less used than it should be because its value is not understood. Practically every research study has shown that security facing online payments remains as one of the major concerns of SMEs – and possibly of large businesses too - but little has been done to plug the gap. Raman suggested EDI could provide the answer to the problem.

Financial institutions have been quick to adopt e-commerce as a means of reducing their own costs and effecting savings. Through the use of ICTs they can provide a number of enhanced online services to clients. Most began with simple web sites that were simply information sources. They then moved to some form of interactivity with electronic products such as online interest rate calculators and account fee advisers. In the third stage they offered personalised banking services which allowed clients access to account information. They were able to link this to their own client databases to personalise marketing on a one-to-one basis. Examples include keeping clients informed about their investment portfolios or providing stock market and share value information tailored to the requests of individual clients. This is what Bauer calls the fourth stage of internet banking (Bauer 1999: 68-73). However, consumers must be assured that such transactions are secure. Banks, with their own high levels of adoption of online commerce, have been in a prime position to solve the challenge posed by the lack of security accompanying online payments, but they have failed to meet that challenge. They have been focussed on protecting their own profits (and even increasing them) without doing what they could to help businesses, both small and large, in overcoming the problems associated with security of online payments.

SMEs have been disappointed by the actions of banking institutions in resolving problems associated with online financial transactions. All actions favour the profitability of the banking institutions at the expense of the SMEs and the consumers. For instance, one bank (St George) has been promoting to EFTPOS card holders what seems to be a bank service to consumers, but is really only another profit-making ruse for the bank. Customers are told that when they use an EFTPOS card in a business to pay for goods or services, instead of pressing the cheque account button, they should press the credit button. They will then not be charged for the transaction. The customer is delighted, thinking that the bank is offering them a free service. What is not revealed is that the merchant is still charged, but the rate at which he is charged is significantly higher. Had the transaction been registered as a cheque account

transaction, the merchant would have paid a fee of only about 0.4%, but when it is charged as a credit card transaction the merchant is charged approximate 1-3% by the bank. The bank gains, but the customer and the merchant both lose out as eventually the merchant reflects the increased fee in increased prices to the consumer (Fariselli et al. 1999: 263-265; McCaulley 2002; McLean and Renton 1992).

Because banks have failed to be pro-active in providing secure online financial transactions, other organisations have stepped in to fill the void. A number of private networks have been established to ensure secure online payment, networks such as SWIFT (Society for Worldwide Interbank Telecommunications) and Target (Trans European Automated Real Time Gross Settlement Express) (Fariselli et al. 1999: 263-269). Other solutions include Secure Electronic Transactions (SET), Paymate, SNAP and PayPal (Phillips [1998]: 114-118). What are these organisations? As they are all similar systems, only one example – Paymate (with information summarised from its web site) – is described here.

Paymate claims to be a secure, accurate and reliable internet payment service available to individuals, businesses and other organisations. Paymate is available to Australian buyers and sellers as well as others in 42 countries. It has implemented several safeguards and uses world-class technology and specialist services to address the risk of internet fraud, especially in the use of credit cards. Paymate does not provide customer credit card details to the seller and all such sensitive data is held securely in encrypted form. They constantly review both buyers and sellers, their credit card and bank accounts and their payment behaviour to minimise risks. One way that Paymate protects their users from internet fraud is via a verification step for Australian bank accounts (to prove that consumers have authority to operate the Australian bank accounts that have been registered). Consumers are not able to accept payments unless their accounts have been verified.

You can send money to anyone with an email address and we will deduct the money from your Australian bank account or charge your credit card. Recipients are notified by email that they have received a payment and then simply register with Paymate, add and verify their Australian bank account to collect their money (Paymate 2002).

Despite not being able to provide a solution to security issues, banks in the United States seem to have been more pro-active in approaching businesses to link with them for financial transactions. There have been attempts to enhance the relationship

between SMEs and their financial institution by encouraging SMEs to develop direct online links to the banks for the payment of accounts (Costanzo 2002: 4). Similar attempts did not appear in any of the available Australian research. Indeed, Poon (1998a) found that the uptake of online financial transactions by SMEs was quite slow. Singh (1999: 753) pointed out that understanding how businesses use electronic funds will lead to the development of more effective financial policy.

### **2.7.3 Push by other agencies**

Initially the technology drove the uptake of e-commerce, but now it is being driven by business strategies (Keen 1999: 48). The whole process e-commerce needs to be demystified if fears are to be allayed and barriers to uptake removed. Government and industry have major roles in this context. It is quite apparent that SMEs need substantial encouragement to become productively involved in e-commerce. Their trade, industry and professional associations have a major role to play in facilitating the faster rate of uptake within their sector and sub-sectors. Although there is little evidence in the literature that these associations are taking their responsibility seriously, there are ad hoc indicators that some industry associations are often the prime movers in SMEs moving into online commerce. For instance, the pharmaceutical industry's initiatives in online stock control have encouraged pharmacies to develop the beginnings of e-commerce (Cox 2002; NOIE 1999d: 12, 2000b). The transport industry, too, has been instrumental in bringing its members online with its logistics control (NOIE [nd]).

Cohesive leadership is the element that draws all the rest together and provides the incentive for acceleration of the adoption and productive use of e-commerce (Brown 2002: 10).

Suppliers of hardware, software, applications and services also need to take responsibility for simplifying the task of e-enabling SMEs. SMEs, in general, do not wish to become overnight experts in IT systems that will make them fully enabled. They want to see value in the time and effort put into learning, installation and operation of such systems.

But they need help! They need guidance! Many require incentives. They need assurance! They need leadership! Peer support need not only relate to more advanced fellow members in their industry sector. Overall a very strong commitment is needed from Government – at all levels (Brown 2002a).

Educational institutions, too, are starting to play a part by educating potential adopters about the mechanics of adopting, of best practices to be followed, and in establishing courses that assist adopters in various aspects of the adoption process (Department of Education, Science and Training 2002; Moussi [nd]; Wade 2001).

In the past, a number of firms have become involved in e-commerce relationships for reactive (or even negative) reasons.

It is estimated, for example, that up to 70 per cent of EDI links are established by firms primarily because a major corporate or government customer specifies this requirement as a term of contract. Other firms have adopted ICT in a 'bandwagon' scenario – simply reacting to ICT deployment by competitors (OECD 1997: 31).

It is to be hoped that coercion will no longer play a role in encouraging SMEs to adopt e-commerce. Incentives ought to be sufficient in themselves to bring SMEs online.

## **2.8 Other factors**

The Sacher Report (OECD 1997) identified four major issue areas – commercial, security, infrastructure, and socio-cultural – all of which are closely interconnected and reciprocal. In all four areas, many of the issues are legal or have strong legal implications, and have been discussed above. This thesis did not address the cultural meanings of e-commerce, although it is acknowledged that these are important. See, for example, Hsiao, R.-L. (2003). There are, however, other issues that are important in the online environment, just as they are in the bricks-and-mortar environment.

### **2.8.1 The stages or levels of adoption of e-commerce**

Very few businesses, especially SMEs, when making the decision to adopt online commerce, adopt the complete gamut of functions at the same time. Most go through a series of stages. Usually they begin with access to the internet and email. All that is needed for the initial presence is a personal computer and an ordinary phone/ ISDN connection. Poon (1998a) found in his study that most SMEs tended to use email for business communication and document transfer (even without access to broadband). The second stage usually is to develop a simple web home page which provides information about the company, its products and services. Web browsers, editing tools for creating simple Hyper-Text Mark-up Language (HTML) pages and some HTML

conversion tools are all that are needed to meet software requirements at this stage. The web site can be maintained by an internet service provider; the business does not even need its own server. It has been generally recognised that it is better to start simply, to develop in stages or to take a modular approach. Once the business was engaged in the simpler or easier stages, it could then proceed to more complex and integrated services that required a higher degree of knowledge by staff, and needed more complex programming to initiate. These included online ordering and payment systems, integrating back-room delivery and logistics operations. (Azzone et al. 2001: 126-127; Bauer 1999: 67-70; Burroughs 1999; Campbell 1998: 12; Cruz 2000: 7; Daniel et al. 2002: 255-256, 258-264; de Ruyter et al. 2001; Essex 2000: 40-41; Evans 2000: 213; Quayle 2002: 1157-1158).

Like Van der Poel (2000), a number of authors, including Rao et al. (2003), recommend adoption proceed in stages. The simplest model of stages of adoption was one offered by Azzone et al. (2001). They see 'the life cycle path' can be divided into three stages:

Phase 0: Companies are *off-line*;

Phase 1: *Communication* phase – companies use the web to exchange information with their customers;

Phase 2: *Transaction* phase – companies implement online transactions (Azzone et al. 2001: 126).

This cycle, however, applies to the adoption of e-commerce through use of a web site only. It accepts that the use of a web site is synonymous with the whole process of using e-commerce. Despite this limitation, it does support the notion that adoption is progressive. Like Azzone et al., the study by Marshall and McKay (2001) described levels of involvement in e-commerce reliant completely on web site use, but they described four levels as:

1. Publish – essentially a web site enabling one-way communication only;
2. Interact – a web site enabling two-way flows of information;
3. Transact – a web site supporting the completion of full business transactions including payment;
4. Integrate – a web-enabled network of trading partners integrated with internal business process and systems (Marshall and McKay 2001: 194).

In the PriceWaterhouseCoopers study, four stages of adoption, although similar to both Azzone et al. (2001) and Marshall and McKay (2001), took the process further:

*Presence.* Stage one is marked by the launch of an e-commerce by creating an electronic presence in the form of a web site and implementing secure electronic channels such as EDI to suppliers and key partners. At this stage, the goals are improving timeliness, cost effectiveness and reach.

*Integration.* In Stage two, e-commerce ceases to be a novelty, and now plays a major role in the organisation's strategy. The enterprise deepens its relationship with the customers by providing continuously enhanced, more relevant, features to them. It is driven in this stage by its alliance with partners and suppliers in its growing enterprise. Exchange of critical information brings greater understanding and value for all players, while dramatically lowering transaction costs within the supply chain offering significant competitive advantages. It is in this stage that organisations start thinking about new innovative ways of conducting business.

*Transformation.* In Stage three the enterprise extends itself electronically past its immediate group of suppliers and customers. Organisational transformation begins as executives distinguish between their core and non-core competencies, while transitioning fundamental business processes to an electronic model. At this level, too, knowledge is shared at an unprecedented level with customers and partners.

*Convergence.* During Stage four, the enterprise leverages its knowledge to focus on creating the greatest value for the customer. It involves true integration with other organisations both within and without one's industry. Over time this will produce cross-industry supply chains that will come together to create networked organisations and markets. These new forms can best be described as dynamic customer-centred networks that may exist for only a single customer, a single contract or a single instant. Customers gain convenience and choice, and businesses benefit from being part of extended cross-industry value networks (PriceWaterhouseCoopers 2000: 27-28).

Schubert and Selz described the levels of adoption as stages in a market transaction. They saw that a market or commercial transaction can be divided into three phases, namely, information, agreement and settlement. The first stage simply supplies information about a product to a customer. In the agreement stage, customers place an order which is subject to standard details such as product specifications, payment, delivery and guarantees. In the settlement stage, delivery of the product will be effected, and any after-sales interactions will also take place. They go on to point out that a sense of community can flow from cumulation of these stages (2001: 85). For instance, customers of Amazon.com form a community with their added reviews of books purchased.

When the ABS analysed its data from the 2000-01 survey, it found that the methods of e-commerce used by most businesses in Australia were of low technology and

simple in process. Of those with internet access, 20% used the internet for email or to search for information only, a figure which had dropped to 5% twelve months later. Just over one third of all businesses (including large corporations) received orders via the internet, but had no web site, suggesting that orders were received via email. The ABS found that there were varying degrees of sophistication among those using web sites for sales, with number of users decreasing as the level of sophistication increased:

14% have online ordering

5% have online payment capabilities

5% offer secure access or transactions

4% have shopping cart facilities (ABS 2003: 754).

By extrapolation of these results, it could be expected that SMEs, with their lower usage of ICTs, would probably have a lower level of sophistication.

One finding that came out of various research studies was that those companies that had other businesses as their customer base (that is, they were engaged in B2B e-commerce) had simpler models of adoption than those that engaged in B2C e-commerce. Indeed, many of those that dealt exclusively with only one or two clients virtually had extranets linking them with their clients, and many of these used EDI technology (Azzone et al. 2001: 134; Colvin 2001; Daniel et al. 2002: 261).

Regardless of how the different levels are labelled, most researchers came up with similar conclusions. SMEs are more likely to implement modular elements of e-commerce in stages than as a complete package of fully integrated functions. They are more likely to begin with the simpler processes such as email than to adopt the more sophisticated ones.

## **2.9 Conclusions**

The emergence of e-commerce is all about using the technology to gain a sustainable competitive advantage in the global marketplace. The new value proposition for business today is to give customers what they want, when and how they want it, and at the lowest cost. To meet increasing customer demands, companies must get rid of inefficiencies and improve customer service. Businesses that meet customer demands

at the lowest cost with accompanying reliability and trust will indeed gain a competitive advantage. Customers will still turn to the most reliable sales channel that meets their needs. They do not care about who is involved behind the scenes – for example, if strategic alliances are involved – only that promises are kept. Companies must identify the critical success factors required to provide the level of customer service needed to create loyalty (Damanpour and Damanpour 2001; Han and Noh 1999-2000: 32, 39-40).

It seemed that in a number of studies SMEs showed the wisdom of hindsight. SMEs who had adopted already could then appreciate what would have been a better strategy to pursue in the adoption of e-commerce. Many had recognised the shortcomings of their initial approach, and now knew what would have been preferable.

They felt they needed to do much more research up-front. They had grossly over-estimated the benefits that would accrue; they had over-stated expected hits on the web site (and hence their ability to raise revenues from advertising); they realised they had to spend much more in marketing their web sites and hence costs had blown out. ... There had been no sense in which pre-investment evaluation had been linked to their post-investment desired outcomes (Marshall and McKay 2001: 198)

The development of a holistic strategy will be a critical element when establishing an e-commerce enterprise. To be successful, any business that adopts e-commerce must integrate strategy, marketing, security, legal, regulatory, technology, and tax matters on both a strategic and operational level. Decisions on how and where the enterprise should operate will need to consider access to suppliers and customers, workforce, infrastructure, government support, and tax and regulatory issues. The strategy must also include steps to overcome internal inhibitors presented by organisational culture, available resources, staff resistance, perceptions and capabilities, yet the actual process of adoption may best proceed on a sequential, step-by-step, modular basis. Each step would build on those taken previously (APEC 1999: 39; Betts 2002: 23; Brown 2002: 3, 10-12; Daniel and Grimshaw 2002a; Daniel et al. 2002: 258-261; Poon and Swatman 1999; Poruban 2000: 26-27; Quayle 2002: 1150-1151; SeeBeyond Technology Corporation 2001: 3; Van der Poel 2000; Wong 2003: 28-30).

E-commerce affects every aspect of the way a company operates. For example, if companies can take orders on their web sites, but cannot accept payment, they are likely to find that customers will move on to a competitor that can handle the

complete transaction. Thus companies must look to integrating all functions associated with their e-commerce ventures.

This chapter reviewed the most significant literature surrounding the main issues faced by SMEs when faced with the option of adopting e-commerce. Chapter Three considers the adoption of e-commerce as an innovation and investigates how the theory fits the adoption of e-commerce as an innovation. However, this researcher has chosen to investigate how e-commerce fits within the demand aspect of innovation diffusion rather than exploring the spatial and temporal diffusion of it, an approach which is discussed in the following chapter.

## **Chapter Three Theoretical framework**

### 3.1 Introduction

Chapter Two looked at the place of SMEs and of e-commerce within the literature. This chapter looks at the role theory of innovation diffusion can play in the adoption of e-commerce. It looks first at why the theory of innovation diffusion is considered important to this study, the conditions for diffusion of e-commerce, and then specifically discusses how the demand aspect of the theory of innovation diffusion provides a framework through which the phenomenon of e-commerce can be studied. It next considers the various aspects of SMEs as they fit the demand aspect of the theory. From these aspects or characteristics it is possible to develop a series of research propositions that form the focus of this research.

There are many stakeholders promoting the adoption of e-commerce by SMEs – stakeholders such as government (Alston 2000, 2001a; Alston and Macfarlane 2001, 2001a), educational institutions (Colvin 2001; Fergusson 2001), and infrastructure providers (NOIE 1999, 2000b, 2002; ACTEW Corporation 2000; Fischer 2000: 37; Quinlan 2002). Some of these stakeholders have a vested interest in the adoption of e-commerce as its adoption will be to their own benefit. For instance, educational institutions will benefit (through increased student numbers and payment of their fees) by being able to provide courses needed by SMEs. The large number of personnel associated with the adoption of e-commerce need high level skills. Others, such as government, see the adoption as being for the greater good of the whole economy (Alston 2001a; NOIE 2002; OECD 1997a: 9). Although e-commerce has been almost universally embraced by large corporations (NOIE 1999a), the slower uptake by SMEs has prompted various stakeholders to engage in a number of strategies to encourage this adoption. Use of innovation diffusion theory can assist in identifying the issues facing SMEs in their adoption process, facilitating the strategies to be used in the adoption process.

Since the 1930s the theory of innovation diffusion has been used to explain the uptake or adoption of innovations across time and space. West defines the term innovation as ‘the process by which firms master and get into practice designs and systems that are new to them’ (2001: 22). E-commerce is a new process which businesses use attempting to enhance their business practices. Under this definition, e-commerce is

recognised as an innovation. This research is interested in the adoption of e-commerce by SMEs. Hence it is appropriate to use the theory of innovation diffusion.

There were, of course, a number of different approaches to the study that could have been taken. For instance, it could have investigated the human-computer interaction, (Bertelson and Bodker 2003; Singh 2001; Vrzalic 2004) but this approach was not the primary interest of the researcher.

### **3.2 Why innovation diffusion is important to this study**

Although the study of diffusion of innovations began in the 1930s, diffusion of innovation has continued to be a major subject of research since then with little sign it is losing popularity. Innovation diffusion has been defined as ‘the process by which an innovation is communicated through certain channels over time among members of a social system’ (Rogers 1983: 5), suggesting what Rai et al. call ‘a contagion effect is the basis for the innovation diffusion process’ (1998: 98). The theory of innovation diffusion has proved to be an important means of evaluating the successful adoption of innovations. Saviotti and Nooteboom (2000) explained why it continues to be important. They pointed out that there was a real growth in the number of innovation studies after the Second World War as highly industrialised countries sought to evaluate the effectiveness of their investment in research and development (R&D) which brought numerous innovations to the marketplace. A longer term effect of these evaluation studies was the creation of a knowledge-based society – a phenomenon which leads to increased innovation, and thus to a continued and increased need for evaluation – a circular process.

Knowledge-creation and -utilisation becomes the fundamental component of economic activity determining the competitiveness of firms and the capacity of countries to create wealth (Saviotti and Nooteboom 2000: 4).

They also pointed out that the creation of a knowledge-based society accounts for a general increase in the knowledge intensity of all economic processes. As the adoption of e-commerce is expected to contribute to an increase in the GDP of the economy (SETEL 2001b: 4), it is important that its diffusion be evaluated. One of the primary reasons offered by Saviotti and Nooteboom (2000) for studying diffusion of an innovation such as e-commerce is:

Studying innovation diffusion facilitates forecasting, not only for businesses, but also for government and infrastructure providers (Saviotti and Nooteboom 2000: 5).

Understanding the adoption of e-commerce contributes to the understanding of the reasons for the diffusion of the innovation, and this understanding will certainly facilitate forecasting. In order to understand the adoption or diffusion of the innovation, one must first consider the environment in which it operates. Since the theory of innovation diffusion was first promulgated by Rogers (1983), numerous studies have been carried out over the decades investigating and confirming the existence of pre-requisites or pre-conditions that facilitate an adoption.

### **3.3 Preconditions for diffusion of e-commerce**

What are the preconditions for diffusion of an innovation such as e-commerce? Accepting that e-commerce is an innovation, it can be accepted also that factors affecting the diffusion and adoption of e-commerce fall within the general principles articulated (if not originated and refined) by Rogers (1983), Rogers and Shoemaker (1971) and Solo and Rogers (1972). The innovation will diffuse faster or be adopted more rapidly if it is perceived as having:

1. A relative advantage over the methods it supersedes in terms of economics, convenience, social prestige, or satisfaction;
2. A high degree of compatibility with existing values, past experiences and needs of potential adopters;
3. A low degree of complexity;
4. A high degree of 'trialability' before commitment is required; and
5. A high degree of visibility to other potential adopters (Clayton 1997: 98-102; Rogers 1983: 230-232; Rogers and Shoemaker 1971: 22-23).

*Relative advantage* is the degree to which an innovation is perceived as better than the idea it supersedes. The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption is going to be. Many of the studies cited in Chapter

Two noted that perceived relative advantage was the primary reason given by SMEs for their adoption of e-commerce. They believed that they would gain an advantage – although often a competitive advantage, it may be an advantage in other terms (Rogers 1995: 212-213) – by being among the first in their industry to put their business online. Thus it can be taken as a given that e-commerce fits this precondition, and does not need to be further studied in this context.

*Compatibility* is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. An idea that is not compatible with the prevalent values and norms of a social system will not be adopted as rapidly as an innovation that is compatible. Yet with e-commerce the role of compatibility is a contradictory factor. Businesses are finding that they need to carry over the same general business principles into online commerce as they used in bricks-and-mortar business. Yet, there are a number of industries (such as personal services) where the business operators perceive there is such a lack of compatibility between their business and potential clients that adoption of the innovation is not considered. The businesses that see a degree of compatibility between the innovation and their business will be the ones that will adopt e-commerce. Those that see little compatibility will be the ones least likely to adopt.

*Complexity* is the degree to which an innovation is perceived as difficult to understand and use. E-commerce is seen by those SMEs that have not yet adopted as being complex and difficult to adopt. Those SMEs that find the degree of complexity too high to overcome will resist change, while those that operate in an ICT environment would find e-commerce much less complex than those industries with little experience with such technologies. ICT-related industries were more likely to be among the early adopters of e-commerce (Daft and Becker 1978: 145-149). There has been a proliferation of ICT-related studies about its their early adoption (Ahmed 2000; Alexander 1989; Busch 1995; Eder 1998; Githeko 1996; Henderson 2002; Lai 1992). Such proliferation suggests that there is little need for further similar studies. As e-commerce is an ICT-dependent innovation, it seems pointless to repeat a study that will only duplicate what is already known.

*Trialability* is the degree to which an innovation may be experimented with on a limited basis.

New ideas that can be tried on the instalment plan will generally be adopted more quickly than innovations that are not divisible (Rogers 1995: 15).

Electronic commerce can be implemented in stages or in modules, and has tended to be so. Indeed, a number of authors (Bidgoli 2003: 96-99; Carr 2002) recommend its adoption in modules so that learning can be incremental. Thus e-commerce fits into this characteristic also, again indicating no need for further study.

*Visibility (or observability)* is the degree to which the results of an innovation are visible to others. The easier it is for others to see the results of the innovation, the more likely they are to adopt also. E-commerce is a highly visible innovation. Those SMEs that adopt it early give the appearance of being leaders in the field.

A study of internet use by Zhang (1999) illustrates the effect of these perceived innovation attributes. He investigated doctoral students' use of the internet for research. His study was designed to examine the five perceived innovation attributes, as identified above. He looked at how doctoral students' perceptions of the relative advantage of using the internet for research affect their adoption of it as a means for research. Zhang's conclusions are briefly summarised below.

1. Graduate students' perception of the *relative advantage* of using the internet for research positively affect their adoption and utilisation of the internet for research.
2. Graduate students' perception of the *compatibility* of using the internet for research positively affect their adoption and utilisation for the internet for research.
3. Graduate students' perception of the *complexity* of using the internet for research negatively affect their adoption and utilisation for the internet for research.
4. Graduate students' perception of the *trialability* of using the internet for research positively affect their adoption and utilisation for the internet for research.
5. Graduate students' perception of the *observability* of using the internet for research positively affect their adoption and utilisation for the internet for research.

6. Graduate students who feel more comfortable with using the internet for research have more positive perceptions of using the internet for research than those who feel less comfortable with using the internet for research.

It could be assumed that graduate students would be more at ease with using the internet than SMEs as this forms part of their education. Thus the findings relating to graduates' use of the internet for research should show a higher level of expertise than would SMEs, but it would be expected that similar results would apply to other users such as SMEs. The similarities between SMEs' use of the internet (Anthony et al. 1999) and that of graduate students suggests that Zhang's findings could apply equally to SMEs. Users' perceptions of relative advantage, compatibility, complexity, trialability and visibility affect their attitudes to adoption of the innovation. See also Karshenas and Stoneman (1995). This could apply not just to students' use of the internet, but to SMEs' use of e-commerce. Zhang's findings, in common with so many other researchers, fits within the traditional model of adoption of innovation diffusion, the classical model developed by rural sociologists studying the spread of hybrid corn in the United States in the 1930s and 1940s (Solo and Rogers 1972). Because the characteristics of adoption apply to e-commerce, it seems appropriate to assume that a study of SMEs' adoption of e-commerce would deliver similar results to those of the traditional method of innovation adoption. Most diffusion studies since the 1930s have followed this traditional pattern, for example, the provision of bank credit card service (Malecki 1975), the adoption of cable television (Brown 1981: 79-86), or the adoption of ISDN (Lai 1992). Many of the studies cited by Brown (1981), Clayton (1997), Rogers (1983), Rogers and Shoemaker (1971), and Solo and Rogers (1972) relate to development of models of various aspects of diffusion of the adoption of innovation. These studies have been in the form of statistical models reflecting the *rate* of either temporal or spatial adoption. There have been a number of research studies of ICT-related technologies and internet diffusion that have taken the same approach, such as Alexander's study of the adoption and implementation of computer technology in organisations (1989), Lai's study of integrated services digital networks (1992), Jahsman's study of information technology transfer (1994), Raisinghani's study of electronic commerce technologies (Raisinghani 1997), Eder's study of intranet diffusion (1998), and Warren's study of the diffusion of internet technology within organisations (1998), to name just a few. To include a study of the diffusion of

e-commerce by SMEs would simply be adding 'more of the same' (Rogers 1995: xvii).

The diffusion of many innovations has been studied from the point of view of the consumer of the innovation. Those studies have looked at consumers or households that have adopted innovations for their own use, differentiated by Brown as consumer innovations (1981: 152). When innovations have been adopted by entrepreneurial firms or organisation for use within the organisation, the innovation has been called a technological or firm innovation. Electronic commerce fits into this differentiation as a technological innovation. Usually a technological innovation replaces an existing technology. E-commerce is slightly different. It is a form of commerce that can replace bricks-and-mortar commerce completely, or it can exist concurrently with bricks-and-mortar commerce. It can supplement it, or it can be developed uniquely as a form of commerce in its own right without relation to bricks-and-mortar commerce.

Adoption of technological innovations such as e-commerce fits within the market and infrastructure perspective (Malecki 1975). Technological studies have tended to give more attention to characteristics of the innovation itself and of the adopting firm, whereas consumer innovations traditionally have tended to give greater emphasis to the communication or information flow process. While accepting that e-commerce fits into the traditional aspects of adoption as outlined above and does not need further research that duplicates them, this study attempted to incorporate elements of both traditions. Such elements include the communication channels or information flow process, availability of infrastructure and familiarity of users with the technology.

One factor, however, that was not included in the above was that of ownership.

### **3.3.1 Ownership**

In 1995, Clayton added an extra attribute which he found to be highly significant to the successful adoption of an innovation within organisations – that of *ownership*. Adoption succeeded only when the person/s instituting it had a major voice in decisions surrounding the whole process. Ownership was closely related to leadership within the organisation. Although the person who seemed to have the strongest ownership of the adoption of the innovation was not necessarily in a position of leadership, that person was the one who seemed to make major critical decisions

relating to the process. Auger and Gallagher (1997: 64), Clayton (1997: 28-29, 32-33, 41-42); Gates with Hemingway (1999: 314-315) and Thong et al. (1996: 264), too, all support the need for someone to have ownership of any process if it is to be adopted successfully – particularly in small businesses – not only to provide resources but to initiate change of culture within the organisation. Not only must this person have ownership, but he must be in a position to be able to assure there are adequate financial and personnel resources support for it.

It is impossible to properly re-engineer a process using technology [such as a decision to adopt e-commerce] without the oversight of someone who can bridge the business and technical teams. This business process owner doesn't have to be the most senior or the most technical person on the business side of the organisation, but the person does have to understand the business need and how the technology will be used in actual work. This person must be respected enough in the organisation to make decisions stick. (Gates with Hemingway 1999: 314).

Ownership is considered to be integral to the successful adoption of innovations like e-commerce. As Kalin says:

The CIO should lead the project since he/she has the ability to formulate a vision as well as the technological know-how to steer the project in the right direction (1999: 40).

This is of ever-increasing importance as the costs associated with going online continue to escalate. If e-commerce is to be adopted successfully, then adequate resources must be provided. Only a senior executive in the organisation can assure these will be available.

### **3.4 The demand aspect of diffusion**

The statistical models reflecting the *rate* of either temporal or spatial adoption are not studied in this research. A cursory view of e-commerce, an ICT-related innovation, as presented above indicates that e-commerce fits within the preconditions of adoption as outlined by the theory of innovation diffusion. Accordingly, there seems little would be gained by repeating similar studies with the adoption of e-commerce. As Rogers says:

There is not a need for 'more of the same' diffusion research. The challenge for diffusion scholars of the future is to move beyond the proven methods and

models of the past, to recognize their shortcomings and limitations, and to broaden their conceptions of the diffusion of innovations (1995: xvii).

The other preconditions for diffusion all do have some small consideration for the adoption of e-commerce, but in agreement with Rogers that there does not need to be 'more of the same', this researcher was not interested in exploring the *rate* of adoption. Of greater interest to this researcher was the consideration of ownership and issues behind adoption affected by the *demand aspect of diffusion* offered by Brown in 1981. Brown (1981: 5) brought together the study of diffusion under a number of different aspects. He saw the early approach from the adoption perspective, focussing on the process by which adoption occurs, or what he called the demand aspect of diffusion. The basic tenet of this approach is that the spread of innovation across a country is essentially the result of the communications process which causes a demand for the innovation. Once people have been introduced to the idea of something new, they are in a position to consider whether to adopt it. Although, as Hahn and Schoch point out, knowledge of the existence of the innovation is not enough (1997: 9). Potential adopters need first to be persuaded that the innovation will be of use to them, before deciding to adopt it, but the adopter then needs to put the innovation into use. All of these steps are part of the communication process. Thus the flow of information is of critical significance. As previously noted, in this study, the simplistic spatial and temporal studies of traditional models were not appropriate. Instead,

It appears certain that we must look toward the organisational decision-making process, which often involves turning to the unique institutional setting in which such decisions are made (Brown 1981: 29).

The demand aspect of diffusion supports the view that in the adoption process of a technological innovation by business the communication process, institutional setting, factors such as characteristics of the firm itself, personal characteristics of management, attributes of the innovation, the industry in which a SME was engaged, and even the role of government, are more important than the notion of a traditional model of innovation diffusion of a consumer innovation. Diffusion is also shaped by what has been termed the market and infrastructure context of innovation adoption and diffusion. Marketing involves both the construction and availability of infrastructure as well as its utilisation. The provision and availability of public and

private infrastructures (such as broadband technologies) have an important influence upon the rate of diffusion.

The characteristics of the demand aspect are discussed in the following sections.

### **3.4.1 Business characteristics**

#### **Management or the entrepreneur**

The entrepreneur is the linchpin of innovation (Herbig et al. 1994: 38).

What is an entrepreneur? Drucker defines an entrepreneur as one who ‘always searches for change, responds to it, and exploits it as an opportunity’ (1985: 42). Thus entrepreneurs can be seen to have a propensity for risk-taking in their attitude. Innovation cannot exist without an entrepreneur. The entrepreneur must, for example, have sufficient capital to establish the introduction of the innovation, be capable of seeing the potential of the innovation for his business, be willing to take the required risks and to expend the required effort and time (Brown 1981: 69; Schaper and Volery 2004: 34-36).

Carland et al. (1994: 135) said many writers have asserted and continue to assert that risk bearing is a prime factor in the entrepreneurial character and function. SMEs are often said to owe their success to the entrepreneurial nature of their management (Czuchry et al. 2002: 42). Although there is considerable overlap between small business and entrepreneurship, the concepts are not exactly the same. All new ventures are not entrepreneurial in nature. However, there is a high degree of risk taking and entrepreneurship needed to start any new venture. The critical factor in distinguishing entrepreneurial from non-entrepreneurial managers is characterised by a preference for creating activity, manifested by some innovative combination of resources for profit (Carland et al. 1994: 138).

Brown (1981) discusses the importance of what he calls ‘management aggressiveness and innovativeness’ as being a significant factor in a business’ decision to adopt or not to adopt an innovation. If management displays innovativeness in other areas of business operation, then it will be more ready to adopt any innovation that can be used by the business. The business must be exposed to the innovation, evaluate it as a significant venture, and be capable of responding by adopting or adapting the

innovation and successfully promoting it. This suggests the individual manager or decision-maker within the company is the most significant factor affecting the adoption. Adoption of the innovation will succeed only if it has the support of senior management. Only senior management can ensure that all resources needed for adoption will be available and allocated to the project (Begin and Boisvert 2002: 24; Clayton 1997: 54-80; Daft and Becker 1978: 191-192; Harvey 2000; Sanders and Bell [2001]: 23; Teo et al. 1997-98: 111).

### **Firm size**

Management innovativeness may be more prevalent in SMEs than in large firms as SMEs (particularly medium sized enterprises) have a greater incentive to grow and improve their competitive position. Such receptivity to innovation may well offset the many advantages that increase directly with firm size, particularly for lower cost innovations which can include e-commerce. E-commerce is readily available to firms regardless of their size. The cost of adoption can fluctuate wildly, depending on a number of variables which can inflate the cost of adoption or decrease it if a firm is more or less ambitious in its requirements.

In general, large firms have several advantages over smaller ones when it comes to the adoption of technological innovations (OFTEL (Office of Telecommunications) 2000: 5). They have a greater ability to raise capital, to carry the costs of innovation, and to bear the risk of failure. Larger firms also can better afford the managerial and technical specialists often needed to evaluate and implement the innovation within the company. In light of this, one could assume that larger companies would be the first to adopt (OECD 1997: 30-31; Parker 2000: 245-252). The Block Report in 1991 highlighted a number of factors that adversely affected the capability of businesses to integrate research and development of innovations in their operations. This report linked low adoption of innovation to the small size of firms (Block 1991: 11). Yet there is a prevailing view that SMEs are more flexible and responsive to adoption of innovation as they are more entrepreneurial in their outlook (Parker 2000: 242). Regardless of different arguments, the matter of firm size seems to be rather a contradictory factor. According to Brown (1981: 160) quoting the results of research, small firms are more likely to have the qualities that lead to adoption of innovation than large firms as they are anxious to grow and increase their industry share. They

are less constrained by bureaucracy within the organisation; they are more flexible. However, the resulting propensity by small firms to be more flexible and innovative is constrained and mitigated by their lesser ability to absorb the cost and risk aspects of adoption.

Firm size seems to vary as a significant factor according to different technologies. With e-commerce, it was anticipated that the size of a firm would be less important than the characteristics of management. This is one of the perceived advantages (noted in many of the studies named in *Chapter 2 Section 2.4.2 Perceived incentives to the adoption of e-commerce*) of using e-commerce – that the very nature of internet commerce obviates the need for firm size to be a factor in whether consumers will or will not buy from that firm – *ceteris paribus*.

Herbig et al. (1994: 40), like Parker (2000: 242), highlight the perspective that SMEs are more flexible and entrepreneurial, with a better capacity to respond to changing customer demand, to adopt different forms of work organisation and to introduce new technologies, products and processes than larger corporations. In other words they are more innovative:

Entrepreneurship, innovation and new ventures provide the fuel for the engine of the modern economy. The importance of these three elements cannot be overstated. Small firms produce two-and-a-half times as many innovations as large firms per employee. Small firms also bring innovation more quickly to the market. Small, new businesses have been the main driving force for the economic growth of the 1980s, contributing virtually all the new jobs born during that decade. Entrepreneurs who head these new ventures seek opportunities and innovations and often provide the resources for them to succeed (Parker 2000: 242).

### **Level of information about the innovation**

A third important characteristic of the firm or business is the level of information the firm has about the innovation itself. Information creates awareness of the innovation, especially as those firms that adopt act as examples of the effectiveness of the adoption, and provide evidence of its benefits and challenges (Brown 1981: 157-158). There is of course more to knowledge about an innovation than simply awareness of it. Information on its own is not sufficient to explain the adoption process. Also important as a basis for effective decision-making about an innovation (adoption or rejection) is the degree of knowledge about how properly to use the idea (Rogers and

Shoemaker 1971: 19). Not only must SMEs have knowledge of the innovation and the necessary resources to be able to adopt, but they must also be able to see how adoption can benefit their business. They must understand how the innovation will affect their business, positively or adversely. This takes more than awareness of the existence of the innovation. Each potential adopter may or may not know of the innovation (or may know about it in varying degrees). This level of awareness would depend on the promotional communication strategy. Second, each potential adopter may or may not have access to the innovation (or will have access to it in varying degrees). One factor in this would be the price of the innovation; another is the potential adopter's ability to obtain financial resources such as a loan to implement it. Also important might be the potential adopter's proximity to infrastructure relevant to using the innovation such as energy sources, skilled personnel, or delivery/collection systems such as broadband facilities.

Often there is one agency that undertakes the task of communicating knowledge of the innovation to the potential adopters. Unlike many innovations that have been the subject of government or other agencies to effect their adoption such as programs through the Cooperative Extension Service in the United States or family planning programs in Third World nations (Brown 1981), the adoption of e-commerce has been less controlled. The variability of e-commerce seems to have precluded its control by one particular agency. Thus awareness of its potential has been scattered. In Australia, trade, industry and professional associations can be used as the means of educating potential users of an innovation, and government at both the Commonwealth and State level as well as non-government agencies such as AUSe.NET have all participated in the dissemination process of e-commerce.

Information about the innovation is critical to its adoption. Often the information is highly specialised in nature, and SMEs must be able to absorb the technical nature of it, and of its potential for their particular businesses. The nature of the information frequently requires specialised knowledge on the part of the person evaluating it for adoption. In the case of SMEs this knowledge can be bought in (or out-sourced), but management must still know enough to be able to assess or evaluate the advice given from such an expert.

Even when a potential adopter has adequate awareness of an innovation and physical resources available, does he have the time to effect the adoption? Time has been repeatedly cited as probably the most significant resource needed.

### **Time issues**

The question of availability of time rose again and again in research studies. The various and multitudinous demands on their time described in various research reports indicate that time is extremely critical to SMEs' decision to adopt e-commerce. Anthony et al. (1999: 263-266) found that time was one critical factor in the diffusion and adoption of online ICTs. Their study is described in some detail here as its findings have strong implications for SMEs. Anthony's study came from a research team based at the Communication Centre, Queensland University of Technology (QUT) (Anthony et al. 1999). In collaboration with various industry partners, this team formed a strategic partnership that undertook a two-year research project of use determinants, adoption rates and socio-economic impacts of innovative ICTs. They examined the usage determinants associated with the diffusion of online ICTs. Their findings indicated that the use of ICTs and their adoption rates are heavily influenced by 'complicated learning processes, the constraints and understanding of time, social networks, skill substitution effects, emotional frustration, and coping strategies' (1999: 260). Their study suggests an iterative and episodic nature of adoption. The main findings of their project concerning the importance of time can be summarised as follows:

- Perceptions of time and its management emerge as major determinants of information and communication technologies usage.
- Investment in the technology is often described in terms of time. For example, time spent on learning how to operate technology/computers is considered worth it in terms of the ability to save time in the long term. Users evaluate the cost of investing their time in learning or using a piece of communication technology prior to the exercise itself. They expect to gain experience, special computer skills or a return on their capital investment, especially if it were a business using such technology.
- The short life cycles of technologies have far reaching implications for the ongoing investment of individual human capital and subsequent time management with users having to continually learn and adjust to rapid changes in a technological environment.

- Learning is important because of the complex, uncertain and rapidly changing nature of innovations in ICTs. The project showed that for nearly all project participants a large percentage of their time spent using information and communication technologies was devoted to learning activities. This learning incurs a variety of costs in terms of time, tangible and intangible resources. ...
- Learning is intrinsic to the utilisation of ICTs for individuals, firms and markets...
- There needs to be an acceptance of the allocation of discretionary time as well as financial capital as measure of investment in human capital (learning). ...
- The adoption of knowledge goods, unlike white goods, costs the consumer much more in time. This factor is responsible for the increasing importance of technological lock-in and path dependency. ...
- Knowledge goods are time intensive in comparison to white goods, but the increasing embodiment of knowledge within a technology can lead to greater transparency. As each innovation matures and becomes more technologically transparent it requires less time investment in learning and skill development for adoption and subsequent usage. ...
- The diffusion of ICTs takes place within an external environment. This contextual environment influences the diffusions of information and communication technologies by either constraining (inhibiting) or reinforcing (driving) the adoption.
- Time is also a key determinant of the intensity (character) of adoption. (Anthony et al. 1999: 261-266).

Their findings have relevance to SMEs in this study. Other studies (cited in Chapter Two) support the contention that they could apply equally to SMEs considering the adoption of e-commerce as to other ICTs.

### **Role of opinion leaders in the diffusion of innovations**

One of the most widely accepted 'critical factors' essential to the adoption of an innovation is the presence of 'ideas champions', 're-inventors', 'opinion leaders', or what have been called 'change agents'. These form part of the group of potential adopters who influence and are considered by other members of that group to have their interests at heart. Compared with their followers, characteristics of opinion leaders tend to include the following. They are:

1. More exposed to external communications;
2. More cosmopolite;
3. Somewhat higher in social status;

4. More innovative, and, perhaps most significantly,
5. At the centre of the interpersonal communication network of the peer group (Rogers 1995: 295-303).

It was anticipated that such opinion leaders would be people who would attend information seminars, and who were active in their professional, trade or industry associations. In other words, the adopters of e-commerce would be members of their respective associations. It was assumed that those who were members of their trade, industry or professional associations would learn of the innovation through these sources and act as early adopters in the adoption process. They would be the opinion leaders or change agents within their industry. There are a number of industries where membership of that industry has been a factor in stimulating the adoption of e-commerce. For instance, the transport industry coordinated information on loads, routes, trucks, freight matching, companies, brokers, shippers, freight forwarders, and other associated parties to improve the availability and efficiency of the trucking industry. It offered these services for a fee (Napier et al. 2001: 77; NOIE [nd]). Pharmacies also have gone online to improve stock control and drug issuance control (Cox 2002). It was expected that these examples would not be isolated, but that other professional associations would prove to be instrumental in moving SMEs to adopt e-commerce. Thus it had been anticipated that membership of trade, industry or professional organisations would be a positive factor in the decision to adopt e-commerce.

### **Return on investment**

Early adopters are those that wish to gain an advantage over their competitors. Later adopters are forced to adopt to remain competitive or do so to take advantage of the innovation's success once any problems have been resolved (Parker 1974: 99-117, Brown 1981: 155). This competitive advantage can be interpreted as an economic advantage provided by the innovation, or ROI. As economists and business accountants constantly exhort SMEs to consider the ROI before undertaking any new procedure or investment (Colkin 2002: 34; D'Amico 2002: 13; Spiegel 2002: 22), it had been anticipated in this study that SMEs would have conducted some form of analysis to estimate their expected ROI before adopting e-commerce in their businesses. According to a number of writers, (Farrell et al. 2001: 2-6; Mitchell and

Associates 2000: 3-5; NOIE 2000b; Singh and Slegers 1998: 35; Yellow Pages 1998), e-commerce represents one of the most promising directions for generating competitive advantage for business organisations and for increasing productivity at the micro level of the organisation and at the macro level of the economy. Yet, the exploratory study by Marshall and McKay had found that:

Generally ad hoc approaches to evaluation of the proposed electronic commerce investments, almost non-existent post-implementation reviews, few measures of success, and generally speaking, there was little evidence of there being proactive management of the realisation of benefits of those investments (2001: 191).

Warren also points out that assessing ROI is rarely undertaken when an organisation is contemplating the adopting an innovation.

In most technology adoption studies to date, however, the economic value of an innovation appears to play a relatively minor role in the decision to actually embrace the technology. Any organisation considering investment in an innovation must first make sure it has enough slack in its resources to be able to make some initial investment in the innovation. However, presuming the slack is available, factors other than immediate economic advantage typically are shown to be more critical in the actual decision to acquire the technological capability. Ad hoc observations of adoptions of information systems (IS), for instance, suggest that numerous institutions and organisations are investing in various IS capabilities even though traditional cost/benefit analyses indicate that the investment will never pay for itself over the life of the software/hardware system being purchased. In other instances, although cost/benefit analysis strongly supports an investment in IS capabilities, the organisation has been reluctant to incorporate the capability. The differences in the acquisition decisions probably can be explained largely by isolating the critical diffusion factors. What appears at first observation to be an irrational economic decision is converted to a rational decision when the critical factors in the diffusion process are taken into account. (Warren 1998: 49).

The intent of Warren's study was to gather initial information on specific assessment and diffusion variables that affect an organisation's decision to acquire and implement internet technologies. His results were complex with only market research being found not to be predictive of adoption success. He found the need to gain a competitive advantage (but not necessarily a ROI) was a significant factor in the decision to adopt.

Other researchers, such as (Greengard 2000; Ihlstrom and Nilsson 2001: 171; Poon and Swatman 1997, 1999a), have noted that attempts to gain a competitive advantage remain as stimulants to SMEs to adopt the innovation. Indeed, in *Section 2.4.1 General incentives* in Chapter Two, this was found to be one of the most significant

reasons given by SMEs for their adoption of e-commerce. Despite the findings of Marshall and McKay (2001) and Warren (1998), it was still expected that in this study SMEs would have followed normal business practices of assessing ROI and undertaken some form of analysis.

### **Industry in which business operates**

Brown (1981: 155) acknowledges that competition among firms, the level of which varies from industry to industry, is another critical factor in the adoption process. Government, through its departments such as NOIE and DCITA, appears to be the primary agency promoting the virtues of e-commerce as an innovation that ought to be adopted. It has produced a number of reports and papers (Alston 2000, 2001a; NOIE 1999, 1999b: 26-27, 53, 1999c, 2000b, 2002f) all bespeaking e-commerce as 'a good thing' for business to adopt. The government's methods of communicating with businesses, however, seem to be of the scatter-gun approach – what diffusion theory calls the 'undifferentiated market marketing approach' (Parker 2000: 243). The same strategy is employed for the whole market, focusing on what is common in the needs of the potential adopters instead of what is different. There appears to be little targeting of a particular market segment. There are other researchers - such as Parker (2000: 242) and Parker and Papandrea (2002: 256-259) - who have pointed out that such an approach needs to be replaced by targeting particular industries instead of businesses generally. Although targeting of specific industries may be important from the point of view of reaching potential users of e-commerce, a study by Booz Allen Hamilton in 1999 found that use of the internet was not industry specific. Their study found that there was no difference in the rate of adoption in either industry or region. Adoption occurred across the board. However, it seems as if specific industries need to be targeted as part of the process of reaching SMEs.

When a different approach is used, that is, one that targets a particular market segment, the agency or agencies promoting e-commerce focus on the most motivated segment first, anticipating that this segment will provide opinion leadership by transmitting the information via interpersonal communications to the lesser motivated segments. This approach is a two-step flow model of communications (Brown 1981: 114). Interestingly, although the government has not appeared to have targeted particular market segments, its agencies do seem to be concentrating on those

businesses that conduct business with the government by giving preference to those who actually use e-commerce methods in their conduct of business with government (AUSe.NET 2001: 1-3; Department of Industry and Technology (DoIT) 2001; NOIE 2002). There is the implicit expectation that these businesses will act as opinion leaders who will influence, either directly or indirectly, other, less motivated, businesses to adopt e-commerce. It remains to be seen if this has been the case in this study.

### **Government initiatives**

As early as 1991, Ross Free, the then Minister for Science and Technology, spoke of the 'need to pursue innovation to correct a structural imbalance in our science and technology system and improve our economic performance'. Free reported that

Managers, researchers and the workforce need to become more aware of the role of research, development and technology; and that there is a dearth of managers experienced in running research enterprises (Free 1991).

In the same year the Block Report pointed out that there was a shortage of capital available for the capitalisation of innovation in the private sector. A much higher proportion of research of innovation was done in the public sector than in the private sector (Block 1991: 32-39). Free also said that 'there is a groundswell of opinion that Australian managers are not well-placed to cope with an innovative, outward-looking industrial climate'.

We need to drastically upgrade our training efforts if we are to build the skilled and flexible workforce needed to embrace new technology. Unfortunately, Australia compares poorly in workforce training with countries like Japan and Germany, where there is heavy investment by employers in training their workforces (Free 1991).

These lacks in the business world have prompted the Commonwealth Government to institute measures to overcome them. Although businesses may be backward in the level of research of innovation, Australian businesses are more innovative when it comes to the adoption of those already in existence. This is the basis for increasing government support for encouragement of adoption of e-commerce by SMEs. It is based on the view that SMEs contribute to employment generation and are exceptionally forward-thinking in the adoption of innovations (Commonwealth of Australia 1997: 12-15; Herbig et al. 1994: 40; Parker 2000: 241-242). Governments at

all levels have been instrumental in developing theory and providing services to assist SMEs with the implementation of e-commerce. For instance, in 1999, the Commonwealth Government announced the development of the government's policy for consumer protection in e-commerce. This policy framework first discusses the context in which this framework must be developed, focussing on the nature of e-commerce and its uptake in Australia. It also looks at the Government's overall policies for the information economy and consumer protection. Its vision is to empower Australians to be at the forefront of global commerce, both as online consumers and as online traders.

Australia will establish a reputation around the world as a centre of excellence for business-to-consumer electronic commerce (Hockey 1999: 19).

In September 2001 the Government announced a \$22 million assistance package for Australian small businesses. One element of the package was a \$6.5 million NOIE initiative to facilitate SMEs' uptake of e-business. There were two components to this element of the package - \$3.25 million to encourage the uptake of e-business by SMEs, and \$3.25 million to promote e-trading between SMEs and Commonwealth agencies (NOIE 2002g).

The ACT government also has established its Business Gateway, which offers a number of initiatives, including a small business advisory office. In addition it has set up its Knowledge Fund to encourage the commercialisation of innovation (ACT Government 2002, 2002a; 2003).

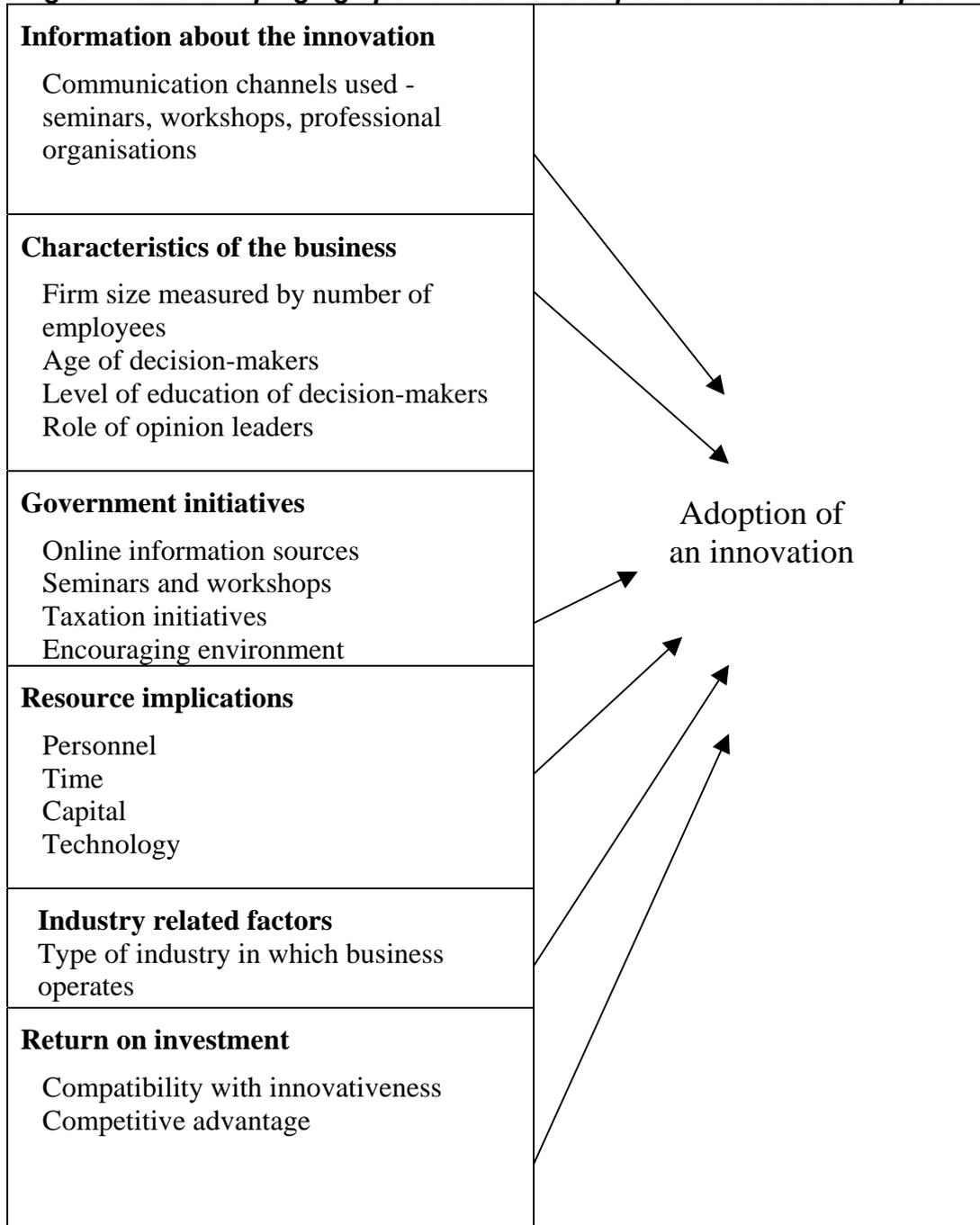
The different levels of government have been proactive in various ways to encourage the adoption of e-commerce, one such way being the establishment of business incubators. In 1998 The Commonwealth Government established the BITS Incubator Program, a government-sponsored program that seeks to build the strength and competitiveness of Australia's information industries by increasing the rate of new SME formation in the Australian ICT sector and encouraging links and networks between participants. A more in-depth description of incubated business and their links with the BITS program was provided at *Business incubators* in *Section 2.7.1 Government initiatives - policy, legislation and aid*.

As governments at all levels have done much to encourage the adoption of e-commerce, it was anticipated that SMEs within the ACT would have responded

accordingly, and noted government initiatives as one of the primary factors in their adoption decision.

The factors impinging upon the demand aspect of innovation adoption can be summarised as below in Fig. 3.1.

**Fig. 3.1 Factors impinging upon the demand aspect of innovation adoption**



### 3.5 Application of the theory

From the attributes characterising an innovation and from the demand aspects of innovation, it was possible to develop two major research questions. From those a number of research propositions were developed. These research questions and research propositions form the cornerstone on which this research was based. The research questions were:

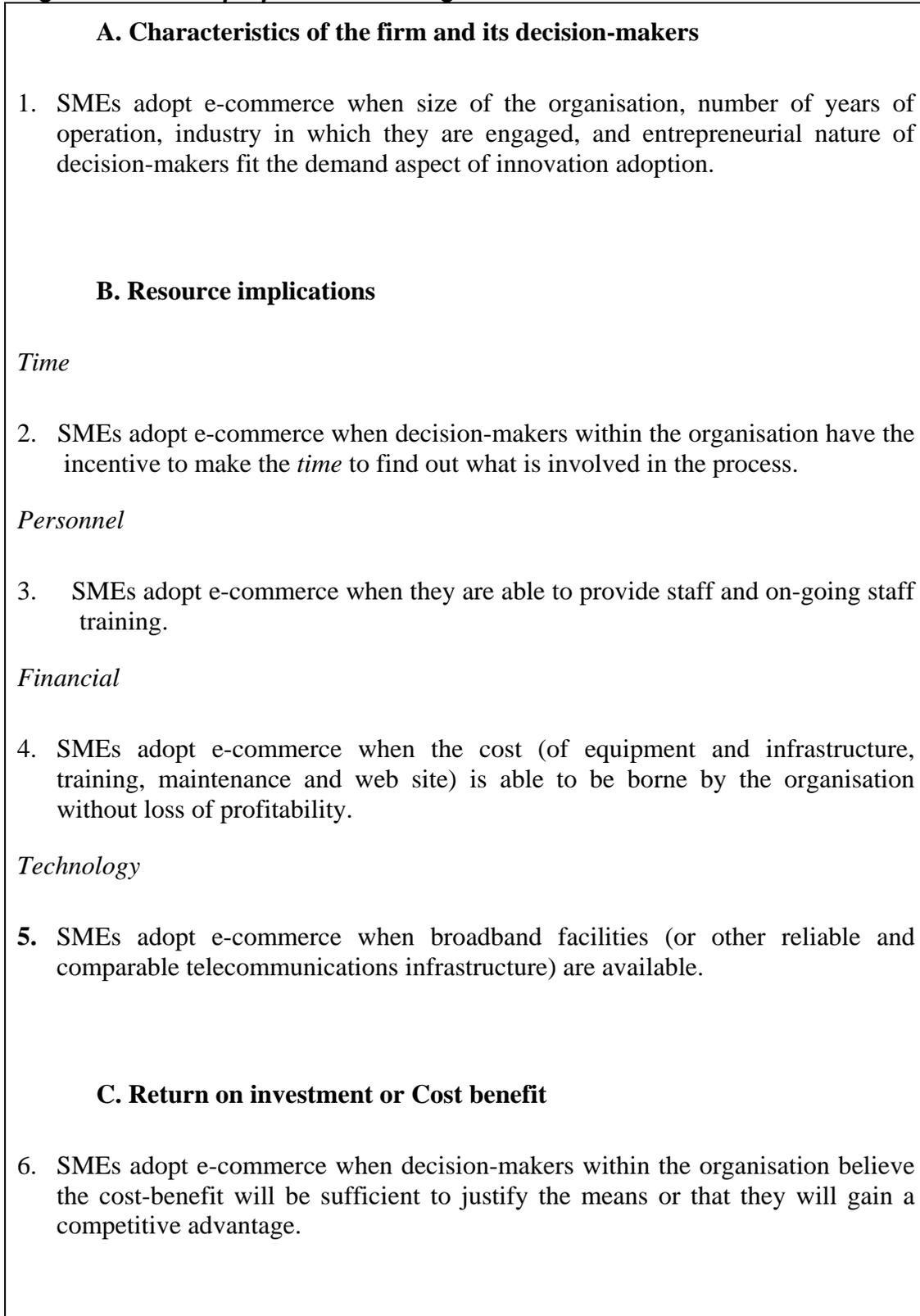
What were the enabling factors and barriers that impacted upon SMEs in the ACT when they considered adopting e-commerce?

*and*

Once SMEs had adopted e-commerce, what were the issues that impinged upon them in their continuing operations using e-commerce?

From these general research questions were developed a number of research propositions designed to give focus and direction to the research. The research propositions fit within the demand aspects of the theory of innovation diffusion, and are as detailed in Fig. 3.2:

**Fig. 3.2 Research propositions arising from demand model**



#### **D. Communication channels**

7. SMEs adopt e-commerce when decision-makers within the organisation maintain professional links outside the organisation (such as with a Chamber of Business) which facilitate their role as opinion leaders within their industry.
8. SMEs adopt e-commerce when there is some external influence that encourages them to do so, such as when their clients want it, or when trade and/or professional organisations push for it for other reasons such as stock control or ordering of supplies.

#### **E. Government initiatives**

9. SMEs adopt e-commerce as a result of government initiatives such as provision of information sources, seminars and workshops.

#### **F. Other issues**

##### *Security issues*

10. SMEs adopt e-commerce when security can be assured to customers and to the organisation, not only in ordering and paying for transactions, but also in keeping records safe from outside interference.

##### *Marketing issues*

11. SMEs adopt e-commerce when they believe their products can be sold across the internet.

### **3.6 Conclusion**

This chapter looked at the continuing importance of the theory of diffusion of innovation as a means of evaluating the successful diffusion of innovations, and how it might apply to the adoption of e-commerce. From the demand aspect of the theory were developed research questions and research propositions that formed the focus of the study. The next chapter will explore the methodology used to investigate those research questions and propositions. It will describe how data were collected and analysed.

## **Chapter Four**

### **Research methodology and data collection**

## 4.1 Introduction

Chapter Three briefly discussed the role played by the theory of innovation diffusion in the adoption of innovations such as e-commerce. From the demand aspect of this theory it was possible to develop research questions and research propositions that formed the focus of this study. *Chapter Three, Section 3.5, Fig. 3.5.1* lists these.

This chapter provides details of the methodology used to conduct this research, including definitions, assumptions, research questions and research design. It describes the population studied, selection of the sample, and how this sample represents the population. It then describes the method of data collection used, and includes a summary of the results of the techniques used in data collection. Finally it describes the methods used to analyse data collected.

## 4.2 Definitions

This thesis investigates the use of e-commerce. It considers those SMEs that use it (adopters) as well as those that do not (non-adopters). To be adopters, SMEs are required to use one or more element of e-commerce as defined by NOIE (2000b: 2). Non-adopters do not use any of the elements. The terms 'SMEs' and 'e-commerce' are used by people in a variety of ways to mean slightly different things. They have been defined here to indicate the precise meanings used in this thesis.

### 4.2.1 SMEs defined

How are SMEs defined? There are different measures that could be used to define them. Governments do not seem to know the best means of defining a business to classify it into a particular category, with no uniform criteria used universally. Schaper and Volery suggest that businesses can be defined by qualitative or intangible characteristics of the firm – the way in which it does things, and the managerial structure. Other such characteristics include its being independently owned and operated, the owners contributing the operating capital, the main decision-makers being the owners (who also

work full-time in the business), whether the firm is a family business, and the business having only a small share of the market in which it operates (2004: 71-72). However, as qualitative measures are difficult to measure, there has been a tendency to use quantitative measures, but again which ones should be used?

Should they use capital expenditure, the number of employees, number of business locations, level of foreign ownership, gross turnover, volume of sales, whether a firm has a registered enterprise agreement, number of unions in the workforce, health and safety policy or some other measure? From the number of variables that could be used, the ABS has settled on using the number of persons employed as the base measurement in Australia (ABS 2000c: 137-149; Ihlstrom and Nilsson 2001: 171). Nor does this method of measurement include sole operators. This lack of rigour in measurement makes it difficult to calculate exactly how many SMEs are operating at any one time. Use of the Australian Business Number (ABN) has helped, but as not all ABNs are in current use, it is not possible for the numbers to be absolute (ABS 2002).

For statistical purposes, most countries seem to use the number of employees to define SMEs, but numbers used vary from country to country. For instance, in Sweden and in New Zealand, SMEs are referred to as having 50 or fewer employees, while it is 100 in the Netherlands, 150 in Turkey, and 100 in both the United States and United Kingdom (Ihlstrom and Nilsson 2001: 171; OECD 1998a: 8), while a survey of APEC countries by PricewaterhouseCoopers in 1999, used 500 (APEC 1999). Even in Australia there is variability. In 1999, the NOIE did not offer a definition for SMEs, but referred to ABS which defined micro, small, and medium businesses separately (ABS 1998a: 1, 4, 6; ABS 2000c: 144-147).

**Fig. 4.2.1 Defining business by size**

Type of business	Number of employees
Micro business	Fewer than 5
Small business	5 to 19
Medium business	20 to 199

However, the ABS definition for a medium business (20-199 employees) also included the agricultural sector. As this study included no SMEs in that sector, it was inappropriate to use that definition. These definitions were extended in 2002 in NOIE's online version of *Ebusiness, better business* (2002f). When the agricultural sector was removed, the maximum figure offered was 99 employees. Consequently, this research used the same definition (ABS 1998a: 101-102). For the purpose of this study, the following full definition has been adopted:

### **SMEs**

Small businesses are accepted as those businesses with fewer than 20 employees, while large businesses were those with 100 or more employees. Medium businesses are those with 20-99 employees. Thus SMEs are those with fewer than 100 employees.

### **4.2.2 E-commerce defined**

Developments in e-commerce are particularly dynamic at this point in time. Consumers can buy practically anything and everything online – from books and groceries, fresh foods, and motor vehicles to airline tickets and stocks. Home computers, the ready availability of internet access, and the variety of services offered by companies on their web sites have combined to make e-commerce an attractive alternative to the traditional means of in-person or telephone shopping. But what is e-commerce? Electronic commerce takes many forms, stems from many incentives, incorporates a wide spectrum of technologies, and is applied in diverse ways to many different types of products, commercial partnerships and alliances, and markets. There are numerous definitions of e-commerce, with many writers and researchers using the two terms 'e-commerce' and 'e-business' synonymously or interchangeably, but all of the definitions refer to

Transactions relating to commercial activities, involving both organisations and individuals, that are based on the processing and transmission of digitised data, including text, sound and visual images (OECD 1997a: 6).

It can take a variety of forms including electronic data interchange, mobile telephone, direct link-ups with suppliers, internet, intranet, extranet, electronic catalogue ordering, and email (Quayle 2002: 1149).

In 1997, the European Information Technology Observatory (EITO) defined e-commerce much more simply:

Electronic commerce is the carrying out of business activities that lead to an exchange of value across telecommunications networks (European Information Technology Observatory 1997: 2).

The term 'e-commerce' is freely used, but there are nuances in meaning depending upon who is using it. In attempting to define the term, one needs to consider the application of activities that can be considered e-commerce. For instance, Adey, quoting from the ABS Information Technology surveys on householders' use of the internet, defined 'private use of e-commerce' as:

- Using the internet to purchase or order goods or services;
- Using the internet to pay bills or transfer funds;
- Using electronic kiosks to pay bills;
- Using the phone to pay bills or transfer funds;
- Using EFTPOS to pay bills or to withdraw funds; and
- Using automated teller machines (ATMs) to transfer or withdraw funds (Adey 1999: 61).

What Adey described is e-commerce viewed from the activities of a private householder. Adey's definition incorporated use of the telephone – as predicated by NOIE (2000b: 5). ATMs, EFTPOS and the telephone have become a standard means of conducting financial transactions for most Australian adults (NOIE 2000b). According to Adey's definition, these all would be considered examples of use of e-commerce.

Then there is a definition of e-commerce that is looked at from the point of view of trading online – from business to customers. Ah-Wong et al. gave a simple definition for this type of e-commerce as 'transactions carried out over the internet'. They added that 'electronic business tools include email, intranets, extranets, EDI and video-conferencing' (2001: 98). Evans supported this definition:

E-commerce refers to trade that actually takes place over the internet, usually through a buyer visiting a seller's site and making a transaction. It is the exchange of information across electronic networks, at any stage in the supply chain, whether within an organisation, between businesses, between businesses and consumers, or between public and private sectors, whether paid or unpaid (Evans 2002: 947).

Mesenbourg, working for the [US] Bureau of Census, developed a fairly standard definition that considered it from the point of view of business. Drawing on a generalised understanding of the different approaches to e-commerce, he produced one that is more universal and generic in approach, especially when considered from a business point of view:

Electronic commerce (e-commerce) is any transaction completed over a computer-mediated network that involves the transfer of ownership or rights to use goods or services. Transactions occur within selected e-business processes (for example, selling process) and are 'completed' when agreement is reached between the buyer and seller to transfer the ownership or right to use goods or services. Completed transactions may have a zero price (for example, a free software download) (Mesenbourg 2000: 2).

NOIE was even more general in its approach. NOIE saw e-commerce as a different and more efficient way of doing business. In answer to the question 'what is e-commerce?' it said:

At its broadest, e-commerce is any type of business transaction or interaction in which the participants operate or transact business or conduct their trade electronically. Potentially this could include activities that include use of the telephone or the fax as well as the internet (NOIE 2000b: 2).

Many practitioners and authors such as Mesenbourg recognised that the terms 'electronic commerce', 'electronic business', and 'cybertrade' are used interchangeably, but that they are slightly different in meaning from one another. Mesenbourg (2000) attempted to differentiate them. Of e-business, he said:

Electronic business (e-business) is any process that a business organization conducts over a computer-mediated network. Business organizations include any for-profit, governmental, or non-profit entity. Their processes include production-, customer-, and internal or management-focussed business processes. Examples of electronic processes are:

- Production-focussed processes include procurement, ordering, automated stock replenishment, payment processing and other electronic links with suppliers, as well as production control and processes more directly related to the production process.
- Customer-focussed processes include marketing, electronic selling, processing of customers' orders and payments, and customer management and support.
- Internal or management-focussed processes include automated employee services, training, information sharing, video conferencing, and recruiting (Mesenbourg 2000: 2).

At a seminar on e-commerce in April 2001 at the University of Canberra a panel of speakers that included representatives from PriceWaterhouseCoopers as well as from other organisations also differentiated between e-commerce and e-business. They agreed with Mesenbourg in that e-business included the whole process of computer-based in-house activities such as marketing, database control, catalogue development, employee services, knowledge management and production and ordering in preparation for online selling. In other words, they accepted Mesenbourg's definition. They saw e-commerce as only one segment of e-business, as did Bidgoli (2003: 50-56) and Kalakota and Whinston (1997: 18-22). Kalakota and Robinson, too, defined e-business more widely than e-commerce:

E-business is not just about e-commerce; it's about redefining old business models, with the aid of technology, to maximise customer-value. E-business is the overall strategy, and e-commerce is one facet of e-business (1999: 4).

Yet it is difficult to distinguish between the two. Where does one finish and the other begin? Most e-commerce has been occurring at the inter-corporate and inter-organisational levels, but e-commerce functions aimed at individual consumers are developing rapidly. B2B e-commerce involves electronic transactions occurring online or via networks between different businesses. Examples of sectors that are heavily involved in B2B e-commerce are IT products and travel services. B2C commerce focuses on direct transaction between business and end consumers, and is especially relevant for intangible products that can be easily accessed or downloaded to the customer's computer. These include entertainment activities such as online games, music, videos and adult entertainment. This does not mean that tangible products do not have a role to play in e-commerce, but that the intangible products at present represent the greater volume of online trade (ABS 2000: 12; Ah-Wong et al. 2001: 99; Cruz 2000: 7; Sheng 2001: 98).

There were those that became B2B traders. Some B2C firms, engaged in B2C e-commerce and unable to make a profit in their original approach, changed their focus. Those that had developed special software to service their online operations offered their software to other businesses considering going online. They sold the software, leased it, or simply offered it as a service for a fee. Others are a combination of B2C and B2B. Then there are those that trade with government – B2G. It gets even more complicated.

Where does a company like e-Bay fit? It is not a B2C company, but an internet auctioneer. It practically runs itself. Consumers fill its web pages with items to sell, and computers handle the exchanges. eBay just collects money from those exchanges (*Carriers building solid e-commerce foundation* 2000: 16; Fischer 2000: 37; Timmers 1999: 41-46).

It can be seen, that depending on the focus taken, such as B2C or B2B or whether it is considered from a householder's point of view, the definition of e-commerce varies. Firms engage in e-commerce in order to achieve better management of commercial transactions and transaction-generated information, and to increase business efficiency. In today's globalising economic environment, however, perhaps the most important incentive is the opportunity to create whole new business areas for information and knowledge-based (intangible) products.

Perhaps this diversity of definitions of the term is a reflection of the embryonic state of electronic commerce today. The OECD found that only relatively few business web sites were designed for direct sales (1998a: 9). However, considering the rapid growth of all facets of e-commerce this situation must change. Today, in 2004, a much higher percentage of businesses depend on online technology for some elements of their business activities. There are so many combinations of types of trading styles that when one is attempting to define the term e-commerce, it is simpler to consider the function and process, rather than who is involved. In this research, the definition used is the B2C one given by NOIE in *E-Australia.com.au: Australia's e-commerce report card*:

### **E-commerce**

In e-commerce, business is communicated and transacted over networks and through computer systems. The most restrictive definition limits e-commerce to buying and selling goods and services, and transferring funds through digital communications. However, e-commerce also may include all inter-company and intra-company functions (such as marketing, finance, manufacturing, selling and negotiation) that enable commerce and use electronic mail, EDI, file transfer, facsimile, video-conferencing, workflow or interaction with a remote computer. E-commerce also includes buying and selling over the World Wide Web and the internet, transferring electronic funds, using smart cards and digital cash, and doing business over digital networks (NOIE 1999b: 60).

This definition encompasses all those activities that most people see as being part of e-commerce. It is preferred, too, because it is Australian in origin.

### **4.2.3 ICT defined**

E-commerce is dependent for its operation of an ICT related infrastructure. The ICT sector of the economy is quite broad, and, according to the ABS definition, includes businesses involved in telecommunication services, computer services, and selected manufacturing and wholesale trade industries. The telecommunication services industry is made up of services to the public by wire, cable or radio. The primary activities of the industry include cable and communication services, operation of radio relay stations, satellite communication services, telecommunication, telephone services, teleprinter and telex services, and operation of television relay stations... It also includes providers to supply a range of local or national telecommunication services to consumer and commercial markets. These services include basic telephone services, mobile phone services, data and value-adding services, internet services, and other telecommunication services (ABS 2004: 626, 623-625)

## **4.3 Research questions**

The primary aim of this research was to discover:

What were the enabling factors and barriers that impacted upon SMEs in the ACT when they considered adopting e-commerce?

*and*

Once SMEs had adopted e-commerce, what were the issues that impinged upon them in their continuing operations?

From these general research questions were developed a number of research propositions designed to give focus and direction to the research. The research propositions fit within the demand aspects of the theory of innovation diffusion.

## 4.4 Research design

As discussed in Chapter Three, the theoretical underpinning for this research required a methodology that would facilitate the collection of data that would enable issues relating to adoption of e-commerce by SMEs to be investigated. For research to be recognised as significant, it must have generalizabilty and validity and be replicable. The method of research and analysis of data used in this research was intended to give it all these features.

### 4.4.1 Assumptions

This research rests on the following assumptions.

- All SMEs in the ACT would be listed in the *White Pages* of the telephone directory because they would be seeking to do business.
- SMEs would be listed only once in the *White Pages*.
- Random selection of SMEs would be representative of the population as a whole – that they would provide a cross-section of the range of SMEs in the ACT.

## 4.5 Research methodology

For the researcher to be able to study the research propositions appropriately, it was essential that she obtain sufficient data from SMEs in the ACT. The first step was to identify the population to be studied. From this population a random sample was drawn. This sample included 75 SMEs, 50 of which had adopted e-commerce, and 25 that had not. The researcher planned to interview the 50 SMEs that had adopted e-commerce, and the 25 that had not adopted. Adopters were answering both research questions whereas non-adopters were answering only part of one, therefore twice the number of adopters as non-adopters were selected. As the researcher was more focussed on issues relating to adopters, she did not need to interview the same number of non-adopters. However, if the sample had contained only SME owners who have adopted e-commerce, it would have been possible to make inferences only about the population of SME owners who have

adopted e-commerce. In other words, it would not have been possible to generalise to the entire population of SME owners in the ACT. By including non-adopters, it would be possible to draw inferences about all SME owners, not just those that had adopted e-commerce. The sample was weighted in the direction of adopters because they were in a position to answer both of the research questions. Having non-adopters as part of the sample served the same purpose that outliers could serve. Reasons by non-adopters for not adopting the innovation could provide reasons coherent with those given by those that did adopt. Studying non-adopters can test and strengthen the basic findings and help prevent selection bias (Miles and Huberman 1984: 232-234; Wade 2002).

The number 75 was chosen not only because it is large enough to give sufficient data from which to draw reliable conclusions but it is small enough to be physically possible (Denscombe 1998: 21-25; Kerlinger 1973: 127-129; Oppenheim 1973: 31-37). It was assumed that this number would be large enough to provide sufficient data from which reliable conclusions could be drawn and to be representative of the range of SMEs operating in the ACT. Ernst and Young, in their world-wide survey, believed they were able to make conclusions about the results of their survey which included only forty-two companies although these companies were spread over twelve countries (Ernst & Young 2001). That they spread their sample so thinly over so many countries raises some doubts about the reliability of their conclusions, however. The sample size in this research is larger than theirs, and thus ought to be more credible.

By selecting the SMEs randomly, it was anticipated that they would be representative of the population as a whole – that they would provide a cross-section of the range of SMEs in the ACT. Results supported this assumption.

(Appendix Two provides a list of SMEs that were surveyed by industry category.)

Thus any conclusions drawn from the data relating to the sample can be extrapolated to the population. Selection of the sample that was representative of the population as a whole should help ensure that the research had external validity. If the findings are appropriate and true, not just for the particular time, place and people in the study, but are generally so, then the research is regarded as externally valid (Lin 1976: 172-176; Minichiello et al. 1995: 176-177).

## 4.6 Population to be studied

The intended population for this study was the body of SMEs within the ACT. This research was set in the ACT for a number of reasons.

- The ACT is a compact, clearly defined region, complete within itself which simplifies the identification of the population to be studied (or what Denscombe calls ‘the sampling frame’ (1998: 17-19)).
- It has a large number of SMEs, estimated at 15,000 (ABS 1998a: 13) - but increased to 16,100 in June 2003 according to ABS (2004: 114) - from which to select the sample for research.
- It has a wide variety of SMEs, from arts, entertainment, automotive industries, fashion, employment and training, forestry, finance, insurance, hospitality, health services, light manufacturing, real estate, to IT communications and tourism.
- Broadband technologies needed to enable high volume e-commerce are already in place or are currently being put in place. TransACT Communications, now a corporation in its own right but originally a subsidiary of ACTEW (ACT Electricity and Water), is currently rolling out a high capacity optic fibre cable network to deliver broadband technologies across the territory (ACTEW Corporation 2000: 4). In addition, other telecommunication providers offer a range of broadband services.
- Telstra is also offering its new wire-less technology, general packet radio service (GRPS) for mobile phones. Telstra claims this service is capable of fast, reliable wire-less connections to the internet. (GRPS is a packet-based wire-less system that gives faster data-transfer speeds for mobile phones, as well as ‘always-on’ connections to the internet or corporate networks (Frith 2001: 15; GSM World [1999]).
- Government policy at both the local and Commonwealth level encourages the adoption of e-commerce. The local ACT Government has expressed interest in Canberra’s becoming a knowledge-based centre of Australia, and to this end has been actively encouraging SMEs by educating them and promoting the potential benefits of

e-commerce, and providing a plethora of information seminars and service points. This active encouragement has complemented the encouragement of the adoption of e-commerce by the Commonwealth government.

- Educational institutions in the Territory are establishing courses in e-commerce in response to demands to support such developments (Wade 2001).
- Australians generally are high users of computers (61%) and of the internet (46%), but the people of the ACT are the highest users in Australia, with 78% using computers and 59% accessing the internet (ABS 2004b: 63).
- ACT business are the highest users of IT of all Australian states and territories. Of all business in the ACT, 88% used computers, and 80% accessed the internet (ABS 2004b: 119).
- The ACT Government, as a relatively new government (it gained independence in 1988) which has to compete for its funding from Commonwealth allocations to States, is keen to develop additional sources of revenue from commercial ventures. Thus it is quite pro-active in its encouragement of SMEs (Brake 2003).

While it is recognised that the ACT may be atypical because of a population that is highly educated and has above average computer use, these factors should not invalidate the results. The high computer use in the ACT merely reflects a growing trend across Australia. Users in the ACT are merely the early adopters of the technology, setting the stage for what ought to follow throughout the rest of the country. In 2000 the ABS reported there had been a rapid and continued increase in the use of computer technology and internet access by Australians generally (ABS 2000b: 1-2; NOIE 2003a).

#### ***4.6.1 Identifying the population***

One of the biggest constraints SMEs face is that of time poverty (Brown 2001; Yellow Pages 1998). Because of the time pressures experienced almost universally by SMEs, it was necessary to find a means of data collection that would result in sufficient data from which to draw reasonably reliable conclusions, but that would not impinge oppressively on SMEs. A major challenge that faced the researcher was that of locating the 15,000

SMEs in the ACT. (In addition to the many registered SMEs in the ACT there are a similar or even higher number of home-based businesses (Brake 2003). [Brake is executive director of the MHBA in the ACT.] Because these are even more difficult to identify than SMEs, these were not considered separately in this study.

The researcher was not able to locate a single listing of all ACT SMEs. New Zealand has a register of all businesses engaged in e-commerce at <http://www.ubd.co.nz> (Lu et al. 2001: 109), but even if Australia had a similar register this would not have helped as it would have listed only those SMEs that were engaged in e-commerce, and not included those not yet using it. In order to be able to generalise the results to all SMEs in the ACT, the study had to represent both adopter SMEs as well as those SMEs that had not adopted e-commerce.

The ACT Government *does* register all businesses that operate in the ACT. However, although their register lists all those businesses that operate now, it also lists all those that have operated at any time in the past. Businesses that no longer operate are not deleted from the database. In addition, some businesses have registered several different names, used to target different consumer bases. In 2002 the register contained approximately 500,000 business names (personal communication from the officer in charge of the database). As this number was certainly not representative of the SMEs currently operating in the ACT, it could not be used for sampling purposes.

The researcher considered using the *Yellow Pages* telephone directory, but found the same challenge here as existed in the ACT Government register. One business was often advertised under several categories. Thus, although the *Yellow Pages* contained all existing SMEs operating in the ACT, the doubling up of many entries would have biased the sampling process. Similar difficulties were experienced when the researcher investigated the online version of the *Yellow Pages*.

It was anticipated that a large proportion of the actual population of SMEs would belong to a trade, industry, commercial or professional association. Accordingly, the researcher considered approaching the major trade, industry, and professional associations in the ACT for their cooperation in surveying their membership.

[Appendix Three lists such associations in the ACT.]

If it were possible to obtain the support and cooperation of the professional and trade associations for surveying purposes, it was believed that this support would encourage businesses to be more inclined to respond. A number of writers have noted the importance of a covering letter to gain support for compliance with completing the questionnaire (de Vaus 1995: 122; Moser and Kalton 1971: 164). Combining this method with what Moser and Kalton (1971: 262-263) and Denscombe (1998: 104) call sponsorship (or cooperation with other organisations) could improve the rate of return of questionnaires. Although Brown (2001) and the Yellow Pages (1998: 45-47) noted that SMEs are reluctant to spend time on activities not directly related to their businesses, it was expected that sponsorship by their professional association would result in a significantly higher return rate than would otherwise be obtained. This was then investigated as a possible method of selection of the sample. However, although this would solve the challenge of gaining cooperation from the sample, it was felt that this method of selecting respondents would not result in a sample that was truly representative of SMEs in the ACT. From anecdotal evidence it was clear that not all SMEs were members of any of these associations. Thus they would be excluded from the population from which the sample was drawn. After consideration this method was also discarded.

During discussion of the difficulty of identifying the population with the researcher's supervisory panel, it was suggested that she should use the *White Pages* of the telephone directory. This is the method that was used for selection of the sample to be studied. To test that businesses would be registered only once, the researcher selected several businesses she knew were registered under more than one business name to see if they were advertised under each name in the *White Pages*, but they appeared only once - under the name of the primary business. The researcher then assumed that each business would be listed here, and further, it was assumed that it would be listed only once. This assumption seemed to be supported by the results obtained. In no instance did any of the sampled businesses appear more than once by being selected under a different name.

### **4.6.2 Selection of sample**

Seventy-five SMEs were randomly selected. Random selection was by use of a random number table and the *White Pages* of the telephone directory. As numbers in the random table consisted of four digits, and the telephone directory has only 438 pages, the first digit from the random number table was ignored. For instance, if the random number was '7239', the researcher dropped the '7', and used '239' for the page. The first random number selected was used to indicate the page and the second the line number on that page. If this selection resulted in a name that was not a SME, the researcher moved on to the next name until she obtained one that was a SME. She then telephoned that SME. The purpose of this initial telephone call was two-fold. First she needed to establish that the number did belong to an operating SME, and secondly she needed to find out if that SME used any form of e-commerce. On the basis of this call she divided respondents into adopters and non-adopters.

Both adopter SMEs and non-adopter SMEs were selected initially. Selection ceased when the researcher had gained 50 adopters of e-commerce. During the process of obtaining 50 adopters, she gained more than 25 non-adopters. In all, 181 SMEs were initially contacted to gain sufficient interviews for the research. Details of all the non-adopters were kept and the first 25 that agreed to be interviewed were those that were chosen for interview after the research with the adopters was concluded. A surprising number of the 181 was rejected because once contact was made with them it was found that they did not fit within the required parameters. For instance, sixteen of them, although included in the ACT telephone directory, operated from outside of the ACT – three from Darwin, four from Sydney, two from the Central Coast, and the remainder from various parts of Australia. Had these been omitted from the figures, then the response figure would have been higher.

### **4.6.3 Representativeness of sample**

How representative are these businesses of those in the ACT? If they are representative then the results of this study can be extrapolated to the rest of the population. They would have external validity. The following reasons suggest that they are representative:

- They were chosen randomly from all SMEs within the ACT.
- Table 4.7.1 shows that SMEs selected are representative of the total number of SMEs within the ACT.

The sample selected was tested for representatives against the categories of businesses in the ACT. The categories of industry type in Table 4.6.1 are from Table 9.1 Locations by employment size – September 1998, taken from *Unpublished data, Business Register Survey, 1998*, and republished by Jacobs in *Australian Capital Territory in Focus 2000* (Jacobs 2000: 117).

**Table 4.6.1 Representativeness of SMEs**

Industry type	Number in ACT	Number expected	Number in sample
Manufacturing	410	2.3	3
Construction	1441	8	7
Wholesale trade	630	3.5	5
Retail trade	2426	13.7	13
Accommodation, cafes, restaurants	624	3.5	3
Transport and storage	432	2.4	5
Communication services	87	0.5	4
Finance and insurance	589	3.3	6
Property and business services	3517	19.9	6
Education	414	4	5
Health and community services	1250	7.6	10
Cultural and recreational	472	2.6	2
Personal and other services	957	5.4	6
<b>Total</b>	<b>13249</b>	<b>76.7</b>	<b>75</b>

The first column, *Industry type*, shows the type of industries included for selection of the sample. As previously noted, this does not include all businesses in the ACT. Omitted

from Jacobs' figures are those that were omitted from the definition of SMEs as given in Chapter 2 – 'Agriculture, forestry and fishing', 'Mining', 'Electricity, gas and water supply', and 'Government administration and defence'. Jacobs' categories were the same categories used in this study.

The second column, *Number in ACT*, shows the number of SMEs in the ACT by employment size (those having 100 employees or more having been omitted from the count). The third column, *Number expected*, shows the number of SMEs that could be expected in each industry type from a sample of 75. Calculations were to the first decimal place, which resulted in a rounding error of 76.7 as the number of businesses expected, instead of 75.

SMEs were asked to describe the type of business they were operating. From these descriptions, the researcher categorised them as closely as possible into the list of categories given by Jacobs. Some imbalance may occur because the researcher was unsure of where to categorise some SMEs. For example, one SME that categorised itself as 'Engineering – engine sales and repairs' was categorised under 'Transport', but part of the business fits under 'Construction', part under 'Retail', and part under 'Manufacturing' as the business manufactured parts to suit specific needs. Similarly, one of the educational institutions could have been categorised under 'Accommodation, cafes and restaurants', as part of its business includes accommodation and a restaurant. Another that chose its category as 'Education' could just as easily have chosen 'Finance and insurance'. Another, a wine merchant, said his business was as much retail as wholesale – into which category should he have been placed?

The final column, *Number in sample*, shows the number actually sampled. One anomaly occurred in 'Property and business services' with only six in the sample when almost twenty were expected. 'Communication services' also showed a slight anomaly. According to the ACT figures, the sample should have selected only one SME, whereas four were sampled. Perhaps businesses of this type were more ready to be interviewed as they saw the topic of e-commerce as quite relevant to their own business. Not surprisingly, all of them were among those that had adopted e-commerce. None of them refused to be interviewed. Each of them was extremely cooperative, interested in the

purpose of the study, and keen to explain features of their own business, extending the interview time well beyond the average. Perhaps part of the anomaly may arise because they were categorised as 'Communication services' when they may have belonged in another category. 'Retail trade' businesses were less keen to be interviewed, even out of business hours, citing 'lack of time' or 'too busy' to 'waste time on interviews'.

The figures for *Number expected* and *Number in sample* are, for the most part, quite close. But when the figures were tested for significance, the results were clear.

Chi-square with 12 degrees of freedom 3.571; p-value = 0.000000012

The selection of SMEs to be interviewed was not only randomly sampled, but was truly representative of the SMEs within the ACT. Thus findings relating to the sample can be extrapolated to all SMEs within the ACT. In other words, the results are generalisable.

In order to ensure that their success was on-going, approximately a year later, the researcher did a follow-up check of 20% (that is, 10) randomly selected adopters. All of these SMEs were still operating and still using aspects of e-commerce, with several indicating that they had increased or improved their use of it.

## **4.7 Method of data collection**

Various methods of data collection were considered before the researcher settled on the one used. She needed in-depth information from SMEs regarding the issues surrounding their decision to adopt or not to adopt e-commerce. This requirement dictated the methods considered and discarded as well as the one finally selected – face-to-face in-depth interviews with those SMEs that had adopted e-commerce and telephone interviews with those SMEs that had not adopted. The following sections discuss the rationale behind the reasons various methods that were considered and either selected or discarded.

### **4.7.1 Postal questionnaire**

The simplest method of collecting data from a large population of SMEs, estimated at 15,000 (ABS 1999a: 13), without incurring enormous costs would have been by use of a

postal questionnaire sent to a random sample of the total population (Denscombe 1998: 88-90; Gorman and Clayton with contributions from Rice-Lively and Gorman 1997: 124; Lin 1976: 241-242; Moser and Kalton 1971: 260-261).

Questionnaires are at their most productive when used with large numbers of respondents in many locations (Denscombe 1998: 88).

One of the biggest constraints SMEs face, however, is that of time poverty (Brown 2001; Yellow Pages 1998: 45-47). This constraint frequently results in a very low response rate to postal questionnaires. Singh and Slegers (1998: 29), for example, reported the return rate to their postal survey of SMEs was so low that they were unable to draw statistically significant conclusions from it. In consideration of the time poverty experienced almost universally by SMEs which leads to a reluctance to devote much time to completing questionnaires, and also that the researcher required in-depth information that would have been difficult to obtain from a postal questionnaire, it was decided not to use a postal survey, but to choose a different means of obtaining the data needed.

#### **4.7.2 Personal focussed interviews of adopters**

Surveys are appropriate when the research focuses on the enumerative ‘what’, ‘how many’ or ‘how much’ type of question. In contrast, ‘how’ and ‘why’ questions are more explanatory, requiring greater input from the interviewee (Smith 1975: 172-180; Yin 1989: 232-236). Although this study needed considerable enumerative data, it also required richer (qualitative) data that could be obtained only by the use of explanatory type of questions of an open-ended nature. Consequently, it was decided to use a recursive model of interviewing – personal focussed interviews - whereby informants were encouraged to offer relevant data using a conversational format (Minichiello et al. 1990: 104, 143, 112-113; Patton 1990: 295-302).

In-depth interviews are ... face-to-face encounters between the researcher and informants directed toward understanding informants’ perspectives ... as expressed in their own words (Minichiello et al. 1990: 93).

There also was a second reason personal focused interviews were considered desirable. This research required more substantive responses than could be obtained from a simple

ticking of boxes as in a survey questionnaire. Although open-ended questions could be asked in a questionnaire, many respondents – especially those SMEs with heavy demands on their time – are often reluctant to answer these questions at length. This study required responses that could be obtained adequately only from face-to-face interviews with probing of responses so that the researcher could investigate causation, that is, to enquire into the reasons behind statements made. Gorman and Clayton with contributions from Rice-Lively and Gorman (1997: 124-132) see this one of the advantages of engaging in this method of data collection.

Personal focused interviews were considered the most appropriate method of data collection. They allowed exploration of meaning of questions and answers by both the researcher and the respondent. Interviews facilitated negotiation, and enabled immediate responses.

The interview schedule [*Appendix Four*] served as a guide to ensure that all topics were covered, but a wide range of questions was discussed during the interview. The researcher encouraged respondents to elaborate and discuss topics that, initially, may have seemed peripheral, but actually yielded valuable material during the course of the interviews. From this discussion emerged topics that would not have been considered otherwise. For instance, the role played by financial institutions in prompting adoption of e-commerce had not shown up in any of the Australian literature studied, but proved to be quite significant in this study.

### **4.7.3 Telephone interviews of non-adopters**

As the information required from those SMEs that had not adopted e-commerce was considerably less detailed than that required from the adopters – many of the questions of the adopters were not relevant to the non-adopters – this information could be obtained in a short interview. The researcher could obtain what was needed from the non-adopters without arranging personal focussed interviews. Lin (1976: 236-237) points out that telephone interviews provide a simple variation of the personal interview. They can be effective for brief interviews. Thus telephone interviews were used with the non-adopter SMEs.

#### **4.7.4 Design of interview schedule**

Copies of the interview schedules used with both the adopter SMEs and the non-adopter SMEs are included as *Appendix Four* and *Appendix Five* respectively. As many of the questions were not relevant to the non-adopters, so were not included, the 'non-adopter interview schedule' was much shorter than the 'adopter interview schedule'. The 'adopter interview schedules' were presented in an order that sought information relating to

1. Use of e-commerce;
2. Perceived potential incentives to be obtained from adopting e-commerce;
3. Perceived disincentives to the adoption process;
4. Process of adoption – who triggered the process, who took responsibility for it, order of adoption;
5. Actual benefits accruing from the adoption process;
6. Actual disadvantages accruing from the adoption process;
7. Lessons learned;
8. Demographic details.

For the non-adopters, some of these were not relevant, with the first four being omitted. Non-adopters were asked, however, about their perceptions of possible benefits and disadvantages and the reasons they had not adopted, as well as for demographic details.

Although parts of many questions could be answered simply by a 'tick' in an appropriate box, most questions permitted and encouraged elaboration. This method not only provided considerable quantitative data for analysis, but also more qualitative data from which to draw inferences and conclusions. As can be seen from the two interview schedules used in the interview process, much more data from which to draw conclusions were obtained from the adopter SMEs than the non-adopter SMEs.

#### **4.7.5 Interview schedule piloted**

The first draft of the interview schedules was piloted with academics and higher degree students at the Higher Degree Students' Seminar Series at the University of Canberra. Changes were made along the lines indicated in the constructive criticism supplied by those in attendance. They were then piloted a second time with the supervisory panel of the researcher, plus several other interested staff members. Again minor corrections were made, and the interview schedules for the personal focussed interviews was then piloted 'in the field' with two SMEs, one in Queanbeyan and the other a Canberra-based business. These were the interview schedules that were used for all interviews. A couple of minor adjustments were subsequently made. For instance, each of the interviewees aged over 65 years asked that their age be recognised. This was done. A second adjustment included the addition of an extra category to Question 5 to include 'general awareness through normal publicity channels'. This adjustment was made by the end of the fourth interview - early enough not to invalidate the results - and prior responses were adjusted to incorporate it.

### **4.8 Process of data collection**

#### **4.8.1 The interview process**

Once adopter SME operators agreed to the interview, the researcher emailed them an interview guide of questions to be asked during the interview. This interview guide was developed around the topics to be discussed. This was not the full questionnaire, but merely an indication of the type of questions that would be asked during the interview.

[See *Appendix Six* for a copy of the interview guide sent to adopters of e-commerce.]

At the beginning of each interview, the researcher reiterated the purpose of the research, assured the respondent again that results would remain confidential, with data being aggregated for analysis. She offered the interviewee a copy of the questionnaire to assist with responses, while she made copious notes on a second copy. Interviews were audio-taped, with permission of the interviewee.

Once the interview was in progress and as the researcher probed for additional information or explanation, significantly more information was forthcoming than would have been obtained from a postal questionnaire. The 'respondent' often became an 'informant'. Responses to open ended questions, too, occasionally provided links between factors that would not have otherwise been considered (Kerlinger 1973: 484).

At the conclusion of the interview, the researcher again thanked the interviewee, then subsequently sent them a formal letter of thanks.

[See *Appendix Seven* for a copy of the formal letter of thanks.]

Yin (1989: 232-236) recommends that researchers keep a full record of interviews on a database to provide what he calls a 'chain of evidence'. This records the names of interviewees, when and where the interviews took place, and details of tape recordings of interviews. This organisation of research data makes it easier to write up the results of the research and reduces the probability of mistakes (Gorman and Clayton with contributions from Rice-Lively and Gorman 1997: 135-136). The researcher maintained such a database. Minichiello et al. stressed the advantages of immediacy of transcribing and coding data obtained from interviews:

The objective is to minimise the period between data collection and data storing and to reflect on the data before commencing the next interview. ... As well as spending time to write and code the data into files, the researcher should be searching for emergent ideas in the data and sketching research strategies (1990: 252).

Minichiello's advice was followed. Immediately after the interview, while it was still fresh in the researcher's mind, the researcher listened to the tape recording of the interview, transcribed it, and then recorded and coded data obtained during the interview, while noting any extracts that might be used. The tape recording served as an aide memoire, as a source of any extracts used in writing up, and was used to check field notes taken during the interview (Gorman and Clayton with contributions from Rice-Lively and Gorman 1997: 135-136; Minichiello et al. 1990: 102, 140-141).

During transcription and listening to the taped interviews, the researcher identified patterns of issues or opinions that kept re-appearing. One such pattern not included in the questionnaire – and not directly related to *electronic* commerce - was the effect of a multiplicity of government regulations on employment. Several SMEs expressed the

opinion that these had become so onerous to fulfil that they were not replacing staff who left through natural attrition, but were engaging contractors who had to manage their own work place conditions.

In general, all SMEs were most cooperative in the study. In recognition of the unexpected degree of cooperation, the researcher decided to acknowledge that cooperation. She put all names of SMEs in the study in a draw for a prize of a weekend for two at a four star accommodation apartment in Thredbo Village. All SMEs had been notified this would happen, and the results were advertised in the *Canberra Times* on a pre-arranged date. The business that won the prize had been one with whom the researcher had experienced difficulty in finalising the interview. A time for the interview had been set up five times, but each time it was cancelled for one reason or another – an accident, illness, staff shortages, time constraints – but eventually took place on the sixth attempt.

#### **4.8.2 Timing of interviews**

In establishing the time for interviews, the researcher had to cater to the interviewee's schedule and availability, not that of the researcher. Thus, it was anticipated that the researcher would be able to arrange interviews only after business hours. In fact, most businesses were willing to be interviewed during business hours, with interview times ranging from 9.00 am to 7.30 pm, and several at the weekend. Interviews lasted between fifty to over ninety minutes. The average length of time was about an hour. Some business owners were so proud of their achievement in developing their business that they wanted to show features of it that went far beyond the interview, but were most interesting. For instance, one research establishment had developed a portable pilot-less spy plane that was to be used by the army in behind enemy lines surveillance, but was still highly secret. (Since the interview its release has been publicly announced.)

Although the researcher had emailed a guide to the interview questions, very few of the interviewees had read it to prepare for the interview. The several who had were able to expand on some questions which they admitted they would not otherwise have been able to answer. Yet all were pleased that they had been sent the guide, probably seeing it as a mark of preparation and respect. [For a copy of the interview guide, see *Appendix Six*.]

### **4.8.3 Time needed for data collection**

Data collection proceeded in two stages.

The first stage, the in-depth-focussed interviews of adopter SMEs, took almost five months to complete. The researcher had originally expected to be able to arrange four or five interviews a week, with data collection of the adopter SMEs taking approximately three to four months. Although this timetable was eventually almost adhered to, initially data collection proceeded very slowly. Data collection proceeded concurrently with data recording and data coding. Thus, although data collection of this stage took over five months, the data were recorded and coded in the same period.

The second stage took the form of telephone interviews of SMEs that had not adopted e-commerce who had been identified in the initial selection process. Again data collection proceeded concurrently with data recording and data coding. This stage took a further two months.

## **4.9 Method of data analysis**

It was planned that both enumerative and qualitative methods of analysis would be used.

Enumerative data were coded into SPSS so that descriptive statistics could be calculated. Cross correlations were calculated in SPSS. Graphs were prepared in Excel as they were more readable than those prepared in SPSS.

Qualitative data were coded using techniques from NVIVO (or NUDIST - Non-Numerical Unstructured Data Indexing, Searching and Theorizing - as it had been called before its latest revision). The purpose of coding is to classify answers to a question into meaningful categories, so as to bring out their essential pattern (Moser and Kalton 1971: 414-428; Smith 1975: 240-241). It actually represents a form of content analysis. In this research, coding applied, not to a single question as is normally the case with content analysis, but to the responses to the whole of the interview wherever they were given. Although many respondents began answering a particular question, their interests often

led them to elaborate so that the information they offered referred to different questions. This offered a much greater depth to the information that could be used for analysis than would have been possible with a more structured data collection method.

As data were recorded, they were coded with a list of subjects or coding terms kept as a separate file. Terms used were the ones supplied by the SMEs themselves, with terms of similar meaning later being combined. As Minichiello says:

We try to retrieve the informant's world by understanding their perspective in language that is natural to them (Minichiello et al. 1990: 93).

When a particular business referred to a particular coding term (for example, 'bank as big brother'), the name of the business was noted against the term in the list of terms. This meant that when analysis of the qualitative data began, the researcher had an indicator to the full record relating to each coding term if cross-referencing were later needed.

[See *Appendix Eight* for a copy of the list of index terms. To retain confidentiality, names of SMEs that used the different terms have been removed.]

The coding was useful in bringing together like material, but as the NVIVO software was not available within the university for use for further statistical analysis, analysis was conducted subjectively. Categories used were those that emerged from the data. Coded terms were not analysed quantitatively but qualitatively. It was not intended to create quasi-statistical analysis on the basis of such data. That respondents found it significant to mention a topic meant that it was important to them. If more than one respondent mentioned the same topic, then it carried greater importance. Topics that were mentioned two or three times without prompting obviously were of high importance to respondents, increasing the probability that such topics were of importance to other respondents but were not mentioned by them (Gorman and Clayton with contributions from Rice-Lively and Gorman 1997: 126).

#### **4.9.1 Limitations of the study**

The study used both qualitative and quantitative research. Even when statistical sub-groups were collapsed to form larger units, groups often remained too small to allow

statistical testing to take place. This was especially true of comparative data discussed in *Chapter Six*. There were many categories, and only 50 in the population of SMEs interviewed. When these were allocated into categories for analysis, there were too few in each cell to permit rigorous statistical testing. Since it was not possible to determine statistical significance, it was not possible to state with complete certainty whether the various adoption factors were truly significant to the SMEs in the ACT.

It would have been preferable, too, had the researcher been able to analyse the qualitative data with an appropriate statistical package such as NVIVO. Unfortunately, however, the University did not own the software when she did her analysis.

## **4.10 Summary**

This chapter explained the research methodologies considered and used. A sample was drawn from the *White Pages* of the telephone directory, consisting of 25 SMEs that had not adopted e-commerce, and 50 SMEs that had adopted. Data from the 25 non-adopter SMEs were collected by semi-structured telephone interviews. Data from the 50 adopter SMEs were collected by the use of semi-structured in-depth interviews conducted in the face-to-face mode. The principal goals were to discover why non-adopter SMEs had not adopted e-commerce, and to discover why the adopter SMEs had, at the same time identifying the barriers and enablers of the adoption process.

Findings of the non-adopters are reported in Chapter Five and of the adopters in Chapter Six. In Chapter Seven, findings are compared so that conclusions can be drawn.

## **Chapter Five Analysis of non-adopters**

## 5.1 Introduction

Just to recap. SMEs for this study were randomly selected from the White Pages of the telephone book. During an initial telephone call, SMEs were asked if they used e-commerce. Depending on their response to this question, they were then allocated into two groups - adopters and non-adopters. The non-adopters consisted of only the first 25 of those SMEs that had not adopted e-commerce. Non-adopters were included in the study so as to compare with the findings from the adopters and to find out if there were any other issues that had not appeared with the adopters. Reasons given by the non-adopters for not adopting could also be some of the barriers experienced by the adopters. Although this part of the study was conducted following interviews of the adopters, discussion of it precedes that of the adopters. The non-adopters offered a great deal less information about their non-adoption of e-commerce than did the adopters about their adoption. Thus it seemed to be more logical to present the results of the non-adopters before the adopters. The results of interviews with the adopters are discussed in Chapter Six.

This part of the study was intended to discover why these SMEs were non-users or non-adopters of e-commerce. Were the reasons they gave for not adopting the same as the barriers experienced by adopters? AUSe.NET had reported that the level of awareness of e-commerce is increasing among SMEs (2000: 11). Yet, despite high levels of promotion of e-commerce by various government agencies and trade, industry and professional organisations, and claims that there was an increasing high level of use of e-commerce among SMEs, there appeared to be an equally high level of ignorance among those SMEs that had not adopted. The level of ignorance was not about e-commerce *per sé*, but about its potential for their business – or what has been called ‘a resistance’ (AUSe.NET 2000: 11; Daft and Becker 1978: 145-149). Although they knew about e-commerce (perhaps somewhat vaguely), they did not see how it could be utilised to improve their own business. They tended to say ‘they were too busy’, ‘it would take too much time to find out’, or ‘it would not suit my type of business’ to avoid having to look into it. There almost appeared to be a lack of interest in it. Many of the SMEs that had not adopted appeared insular in their approach to e-commerce, content with the way they were doing

things, and not seeking any ways of further improving business. They lacked resources generally – personnel, capital, and knowledge – and usually had a low level of technology incorporated into their business. Their responses to the interview were short, not at all in-depth, and almost monosyllabic at times. The amount of information they gave was disappointing when compared with the amount gained from the face-to-face interviews of those who had adopted. Perhaps the style of interview – over the telephone – was partly responsible as the researcher lost the advantage of all the communication clues that accompany face-to-face contact. If she were to repeat the study, she would endeavour to use face-to-face interviews to see if there were any difference in results.

Was their non-adoption a conscious decision or was it simply the result of lack of decision-making? Or was it the result of a multiplicity of other factors – as Lawrence (1997) and Stauber (2000) both found in their studies of SMEs in Tasmania?

The order of the questions was designed for interview purposes, but for clarity of presentation, the results are presented in a different order. In discussing the results, like information has been combined so that it presents as a developmental process. Responses to the industry question were used in Chapter Three to substantiate the methodology used, and are omitted from this chapter.

These results have been presented in the following order:

- 5.2 Nature of non-adopters as entrepreneurs
- 5.3 Present knowledge of e-commerce
- 5.4 Finding out about e-commerce – communication channels
- 5.5 Being subject to external initiators
- 5.6 Possessing an appropriate level of technology in their business
- 5.7 Possible benefits to be gained from e-commerce
- 5.8 Disincentives to adopting e-commerce
- 5.9 Reasons given for not adopting e-commerce
- 5.10 Characteristics of the firm

### 5.11 In summary

[Appendix Nine indicates the order of questions used in each section for analysis of non-adopter responses.]

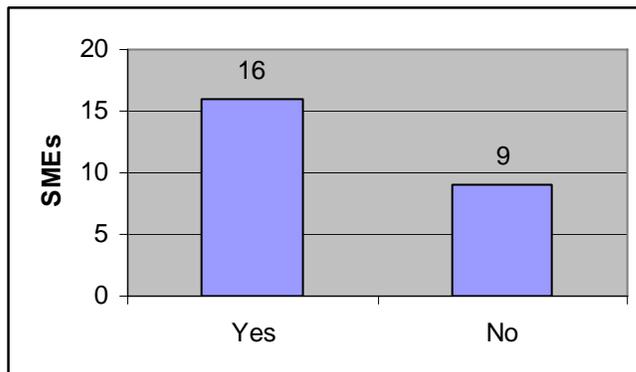
## 5.2 Non-adopters as entrepreneurs

Even though SMEs in this part of the study had not adopted e-commerce, 64% of them felt that they were entrepreneurs in other areas of their business.

Fig. 5.2.1 summarizes these beliefs.

[Although results are presented throughout this chapter in graphic form, the raw data are presented as tables in Appendix Ten.]

**Fig. 5.2.1 Non-adopters who saw themselves as entrepreneurs**



Successful active entrepreneurs have an innate understanding of what it takes to run, expand, reconceptualise or create a business. As one SME succinctly put it,

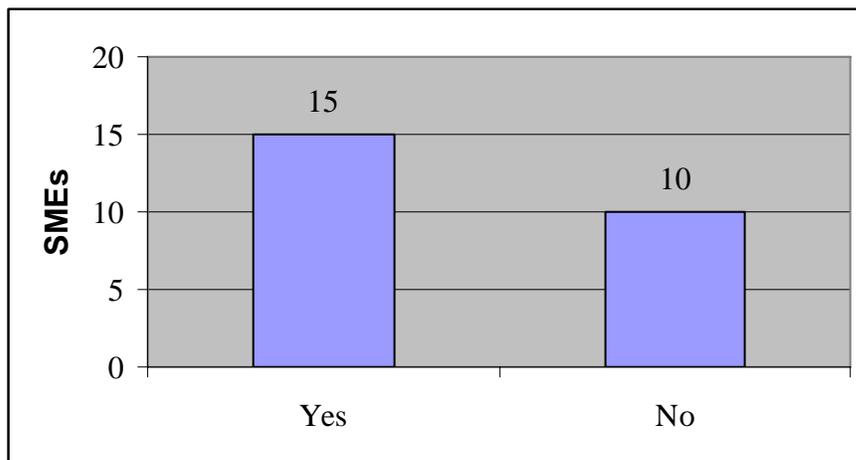
We wouldn't be in business if we weren't [entrepreneurial in nature].

Of the 36% who did not see themselves as entrepreneurs, 16% of them added that they liked to investigate anything new thoroughly before considering whether they would institute it into their business – they would be late adopters of any innovation.

Non-adopter SMEs were asked if, as entrepreneurs, they considered themselves early adopters of innovations relevant to their business. They were asked to name some innovation they had already adopted. As they were non-users of e-commerce, the innovations did not relate to e-commerce.

Fig. 5.2.2 shows the results of this question.

**Fig. 5.2.2 Non-adopters who saw themselves as early adopters**



Of the 64% of non-adopters of e-commerce who saw themselves as entrepreneurs 60% saw themselves as early adopters of new products or services that could improve their business, and were able to give examples of these innovations. Thus there seems to be a relationship between having an entrepreneurial attitude and being willing to institute innovations into their businesses. As one person said

We'd get left behind if we didn't adopt innovations.

Of the 40% who saw themselves as late adopters – or even non-adopters – several expressed the view that they preferred to 'wait and see' before committing to the adoption of any innovation. This number was similar to the number that did not see themselves as entrepreneurs.

In summary, almost two thirds of the non-adopter SMEs saw themselves as entrepreneurs and introduced innovations into their businesses, while the remainder were more

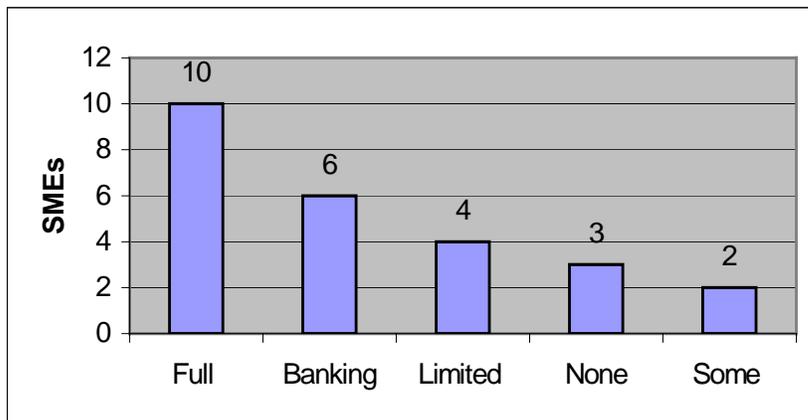
cautious. As they had not adopted e-commerce – and may never adopt, did they know about it? What was their knowledge of e-commerce? This question is examined in Section 5.3.

### 5.3 Present knowledge of e-commerce

SMEs who had not adopted e-commerce were asked to explain what they understood was meant by the term ‘e-commerce’. They were not offered any definition, but were asked to use their own words to explain.

Fig. 5.3.1 summarises their level of understanding.

**Fig. 5.3.1 Non-adopter SMEs’ knowledge of e-commerce**



As none of the SMEs in this part of the study had adopted e-commerce, it was anticipated that their knowledge of e-commerce would have been very sparse or elementary – rather rudimentary. This, however, was not the case. Forty per cent of them were able to explain quite clearly what e-commerce meant. Another 24% saw it as limited to using online banking, while the remainder had much lesser knowledge. Twelve per cent (or only three cases) said they knew absolutely nothing about what it meant, while sixteen per cent (or four cases) had very limited knowledge. The other eight per cent indicated they had *some* knowledge, a little more than limited. Of those who had no knowledge, none expressed any intention to find out about it. As one respondent said

I just want to slide through to retirement without bothering about it.

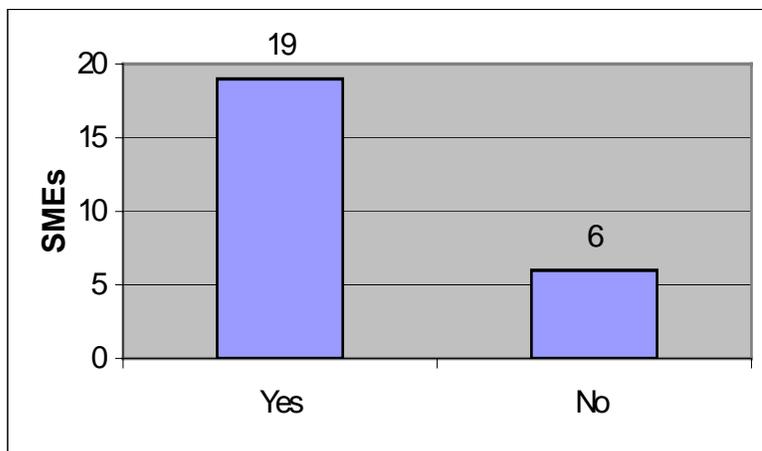
As fewer than half of the respondents in this section of the study appeared to understand fully what was meant by e-commerce, and one quarter saw it as limited to the use of online banking, it seems appropriate to question how they gained their knowledge. How did these people find out about e-commerce and its potential for business? Did they belong to professional associations or did they attend seminars where they would have been exposed to new ideas?

#### 5.4 Finding out about e-commerce – communication channels

As SETEL suggested, trade, industry or professional associations ‘can provide leadership, advice and assistance’, especially about applications service providers and support bodies associated with broadband and other aspects of e-commerce (2003c: 3). As almost two thirds of the non-adopter SMEs had a reasonable understanding of what e-commerce meant, it was expected that most of them would have belonged to their trade, industry or professional association. Thus it was anticipated that such associations would be a source of information and education about e-commerce to their member SMEs; that they would have been a communication channel.

Fig. 5.4.1 summarises the level of membership of their professional association.

**Fig. 5.4.1 Membership of professional associations**



Three quarters or 76% of the non-adopters of e-commerce belonged to trade, industry or professional organisations – more than the number that understood what e-commerce meant, and a much higher figure than the 46% obtained by Stauber (2000: 11). For many of them, however, membership was almost a condition of operation in their field (not necessarily a source of other information). For instance, a tattooist belonged to the Professional Tattooing Association of Australia, and dentists belonged to the Australian Dental Association. Nor were all of their membership experiences favourable. For instance, one of the members was highly critical of the local Chamber of Commerce and Industry, saying

The chamber is basically useless. It charges an exorbitant fee, and gives no return on the investment (An outdoor power centre).

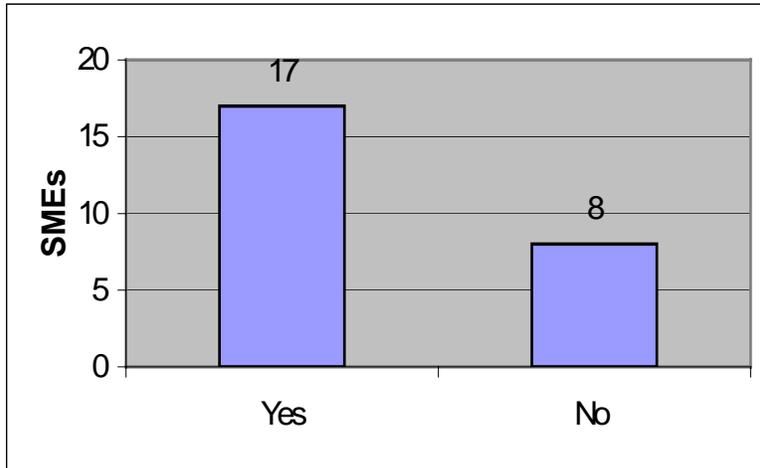
Yet more professional businesses such as solicitors seemed quite content with their membership of the same organisation. This suggests that the Chamber has more to offer professional businesses than trades.

The other 24% did not belong to any trade, industry or professional association. If they had, would this have made a difference to their attitude to e-commerce?

Despite high membership of their trade, industry or professional association, these SMEs chose not to adopt.

Membership of their professional associations could have provided the means by which they found out about e-commerce, but attendance at seminars may also have been a means. Did they attend seminars where they would be exposed to new ideas that could act as triggers to adopt innovations?

Fig. 5.4.2 shows the number who attended seminars.

**Fig. 5.4.2 Attendance at seminars**

Two thirds of the non-adopters - 68% - attended seminars where they were exposed to new ideas. Of the other 32% who indicated that they did not, one said that he used to, another (who was more progressive in his plans for his business) said he 'would like to but was just too tired', while two others said they very rarely attended any.

The number that attended seminars (68%) is slightly lower than the number that belonged to their professional association (76%). Yet, both numbers are quite high, suggesting that although non-adopter SMEs may have found out about e-commerce by either of these methods they still did not choose to adopt. There must have been other factors in their decision – or non-decision.

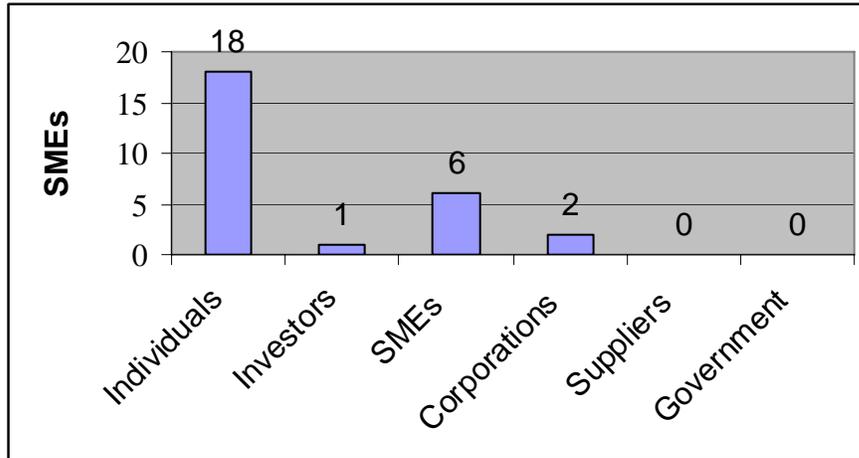
### 5.5 Being subject to external initiators

Lawrence had reported that SMEs in her study had indicated that they were not prepared to incorporate any e-commerce in their business 'unless there was a specific request for it by one of their trading partners' (1997: 596).

The question that asked SMEs which segment made up the bulk of their clients – single individuals, investors, other small/medium businesses, suppliers, government departments - was included to see if clients of SMEs had any influence on their decision

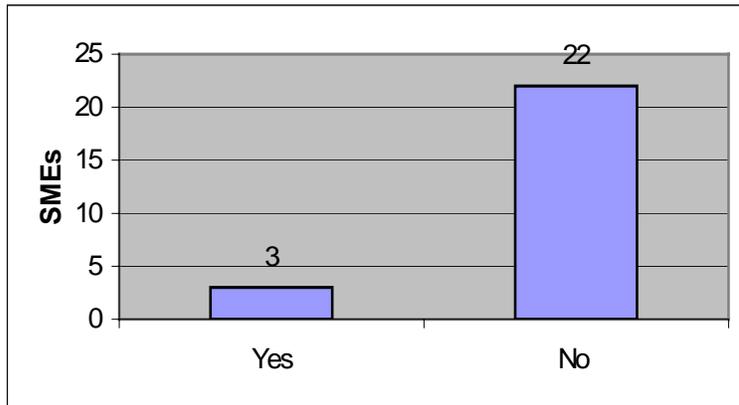
to adopt or not to adopt e-commerce. Fig. 5.5.1 shows the result. Figures total more than 25 as some SMEs gave equal weight to two or even three categories of clients.

**Fig 5.5.1 Client base of non-adopters**



As can be seen from the figure above, the majority of SMEs (72%) nominated individuals as being their principal class of client, with 24% giving other SMEs. One SME nominated investors as their main client, and two said that other major businesses were their main clients. Not one dealt largely with suppliers as their clients. Nor was the government the principal client for any SME.

Although not included as part of the initial survey, but as a result of interviewing those SMEs that had adopted e-commerce, it became obvious that banks had been pro-active in encouraging adopters to move their financial operations online. Accordingly, non-adopter SMEs were specifically asked if their financial institution had approached them. Had banks approached the non-adopters to the same extent as they had approached the adopters? As banks had provided this stimulus to a number of adopter SMEs, the researcher wanted to find out if banks had approached the non-adopters in a similar manner, or if at all. Fig. 5.5.2 shows the result.

**Fig. 5.5.2 Approaches made by banks**

As can be seen in the above figure, in only three instances had banks made the initial approach to adopt electronic banking facilities. SMEs in this section of the study were asked to name their major commercial bank to see if there was any difference in the policy of the different banking institution. This did not seem to be the case. All of the major banks had been used by some of the SMEs – ANZ, Citibank, Commonwealth, National, St George, and Westpac. However, only three of the SMEs in this sample had been approached by their bank. Nor was it the just one particular bank; three different banks had made approaches to the three SMEs. The size of the SME did not seem to a consideration by banks in their decision to approach SMEs. The three that had been approached had three, eight and sixteen employees respectively. It appeared that size was not a reason behind bank's approaches.

Although none of the SMEs in this part of the study was presently using electronic banking, two indicated that they planned to do so in the near future, but neither of them had been the target of the banks' approaches.

SMEs in this section of the study had not been subjected to pressures from external initiators such as single individuals, investors, other small/medium businesses, suppliers, government departments, to adopt e-commerce. No one class of client was instrumental in persuading SMEs that they ought to adopt e-commerce. This suggests that clients had no influence on the decision of SMEs in this sample not to adopt e-commerce.

However, even if they had not been pushed into adopting by some external initiator, would they have had the appropriate level of technology needed to adopt e-commerce?

## **5.6 Possessing an appropriate level of technology in their business**

Did the non-adopters have adequate technology that would have facilitated the adoption of e-commerce?

Considering how pervasive computers are now in the business world – indeed, AUSe.NET claimed that ‘the level of computer use by businesses is now almost universal’ (2000: 7) - it was anticipated that most if not all of the non-users of e-commerce would use a computer in the business, but this was not the case in this study. Most lacked even the basic infrastructure to enable them to adopt e-commerce. Computer use among the non-adopters was surprisingly low, with just 60% of them using a computer in their business. This was lower than expected when ACT users are higher than the national average (ACT Government 2000). This was lower than in Tasmania where Stauber found that 84% used a computer (2000: 30). Ownership of computers by the non-adopters was much lower even than the national average quoted by NOIE for 1999:

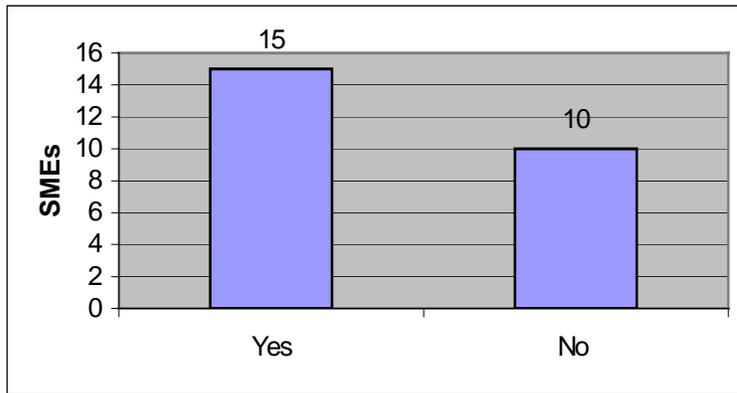
In May 1999, 82% of small business and 99% of medium business used computers in the workplace. Perhaps more significantly almost 50% of small business and almost 80% of medium business stated that they were highly reliant on computers (NOIE 2003).

This low computer use supports what Ah-Wong gave as one of the structural reasons why the European Union lagged behind the US in the adoption of e-commerce – ‘lower PC [personal computer] penetration’ (2001: 100). Although 60% of them used a computer in their business, most appeared to use them in a limited fashion. This was similar to Lawrence’s findings. Lawrence had found that many of the SMEs visited in Tasmania had a low level of existing hardware.

In some instances there was very little technology incorporated, while in other instances, there was a large amount of outdated and inefficient technology being utilised in the business (1997: 593).

Fig. 5.6.1 shows the level of computer ownership by non-adopter SMEs in this study.

**Fig. 5.6.1 Non-adopters' use of a computer in the business**



As Lawrence's study was some six years earlier, it was not expected that the same situation would still apply, especially in the ACT where the population has a high level of computer use compared with the rest of Australia. One SME operator said he could not see what a computer would do for him. Another said it took too long to learn how to use it, and it was quicker to do things the way they were used to doing them. Another had one at home, but could not see how he could use it in the business. Although online transmittal of Business Activity Statements (BAS) was mentioned frequently by the adopters, not one of the non-adopters used online access to send in their BAS.

Perhaps it was that these SMEs were not computer literate and comfortable with using computers that they did not feel inclined to investigate adopting e-commerce. If they were not inclined to adopt e-commerce, perhaps it was because they did not see any benefits could be obtained from doing so. Section 5.7 discusses this.

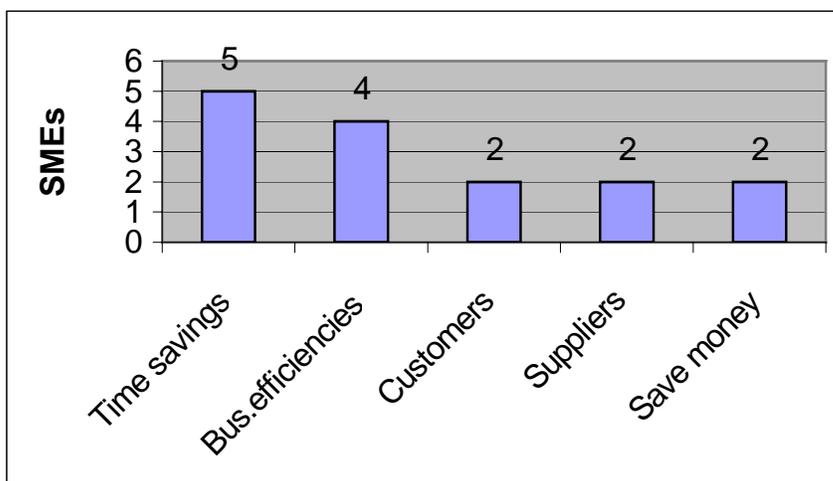
## 5.7 Possible benefits to be gained from e-commerce

It is hardly surprising that when the non-adopters in this sample could see little appeal for their adopting e-commerce they found difficulty in seeing any potential benefits in it. Sixty per cent of them said they could see no possible benefits in it. One, the one who

wanted ‘to slide through to retirement without bothering about it’, said that there possibly were some, but he was not interested in them. One educator said they may implement training programs over the web at a later stage, but at present they were concentrating on face-to-face training. Another thought it was probably the way to go in the future, but at present he could not spare the time to think about it. Surprisingly, an earthmoving and road transport repair company that did not even own a computer (and that had said they were waiting on TransACT, a local broadband provider) said they would wait and see it working for others before adopting, but perceived that it could possibly offer them quite a lot of potential benefits. It was difficult to understand why this SME used TransACT – which would offer them broadband services – as a reason for delaying adoption. Did they believe that they could do more with TransACT than what they could do now and did they know how this would assist them in their business? Or did they not have any real idea of what TransACT could offer them? There seems to be a growing gap between SME awareness and usage of emerging broadband technologies and existing narrowband services. This same company was particularly appreciative of the possible improvement in communication with suppliers and customers, and the savings in Subscriber Trunk Dialling (STD) costs that could be effected.

The following graph – Fig. 5.7.1 – indicates the potential benefits that were recognised by the few SMEs that could see some. Note the small numbers.

**Fig. 5.7.1 Potential benefits**



In addition to these, of nine of the non-adopter SMEs, each saw only one of the following potential benefits of being of possible benefit to their business:

- Improved communication (with clients, staff or suppliers)
- Online banking or other financial operations
- Savings in procurement
- Lowered cost of individual transactions
- More efficient way for customers to pay accounts
- Possible expansion of geographic coverage
- More efficient way to pay invoices from suppliers
- Improvement in customer relationships
- Being seen as progressive and up-to-date

It was apparent that non-adopter SMEs did not believe that there were many benefits that could be obtained from adopting e-commerce. This is in direct contradiction to the government's position on the assumption that the adoption of e-commerce is 'a good thing' for *all* SMEs (Alston 2001; Hockey 1999: 8). If they could see few possible benefits, perhaps there were other factors that acted as disincentives to their adoption. This is discussed more fully in the following section.

## **5.8 Disincentives to adopting e-commerce**

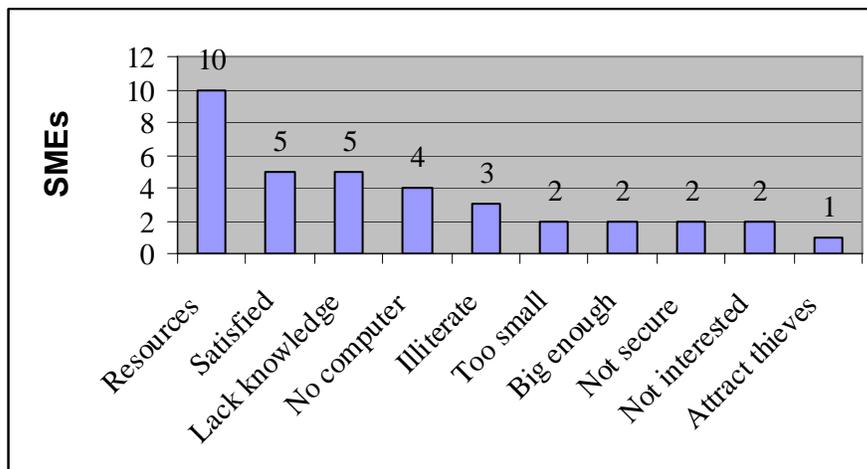
Many proponents of e-commerce promote the adoption of e-commerce as 'a good thing' for businesses of all sizes (*Factors promoting e-commerce adoption* 1999; Farrell, et al. 2001; Mitchell 2000; NOIE 2000b; Singh and Slegers 1998: 13; Yellow Pages 1998), but non-adopter SMEs see there are disincentives to adopting. Some innovations are uneconomical for either the social system or for the individual. Such is the case with e-commerce. There are a number of non-adopters who feel that it is uneconomical. In other words, the cost of adopting does not justify the return. This has been one of the reasons

often given by SMEs for not adopting e-commerce (Ah-Wong 2001: 102; Begin and Boisvert 2002: 26; Cameron and Joyce 2001: 224; Kotwica 2001; Marshall and McKay 2001: 194-196; Yellow Pages 1998).

Lawrence's study of Tasmanian SMEs (1997) found that there were a number of 'negative influences' which contributed to the decision not to incorporate e-commerce into their business processes. In other words they were inhibitors to the adoption decision. These factors included lack of or limited resources (capital, personnel, time), lack of knowledge, poor computer literacy, organisational resistance to change, perceived lack of professional direction of e-commerce, and lack of awareness of its potential for their own business. Results of findings in this part of the study were similar to her results.

Fig. 5.8.1 indicates the reasons presented by non-adopter SMEs in this study. Numbers total more than 25 (or 100%) as some businesses gave more than one reason for their non-adoption.

**Fig. 5.8.1 Reasons for not adopting e-commerce**



When asked if they could say why they had not adopted e-commerce, the non-adopter SMEs gave a range of reasons, but clearly the most important was what they *perceived* as the cost – the financial cost, cost in terms of time to learn what was required, and in cost of resources generally.

### **5.8.1 Cost**

The reason they gave was not necessarily based on fact, but was what they perceived it to be. For instance, one SME quoted an outlandish sum (in the hundreds of thousands of dollars) for what he understood was the cost of constructing and maintaining a web site – a cost that would possibly relate to a large corporation, but certainly not to any SME. In others it was a known cost. One small medical centre indicated that the cost of a complete program specifically for medical practices which was available at a cost of \$22,000 four years ago probably would be much more expensive now, and she did not feel it would be cost effective. They had not investigated to see what it would save or benefit them, but had been deterred by the large initial outlay. Indeed, NOIE, a government department that provides advice and guidance to the SME sector, has not set a reassuring example with its \$4 million web site (SETEL 2003d). It is hardly surprising then that SMEs see the cost of developing a web site as prohibitive.

### **5.8.2 Satisfied with the way things are now**

Twenty per cent indicated they were happy with their current way of doing things, and could not see any benefits in changing. In their words, ‘if it ain’t broke, don’t fix it’ or ‘don’t change for the sake of change’. One said he had a banking background, but it was simpler for him to work things out on paper than to try to use a computer – especially his accounting. (He now owned a liquor store.)

Another two SMEs indicated that they did not want to increase their business. They had all that they could handle. If they increased their business they would have to hire more staff, and this would create even more overheads for them to worry about.

### **5.8.3 Lack of knowledge or time**

Lack of time and lack of knowledge are treated together, as most SMEs who lacked knowledge gave the lack of time as the main reason they were not able to find out what was needed. Lack of time was a factor noted as a disincentive in other studies (Ah-Wong,

et al. 2001: 102; Anthony, et al. 1999: 261-265; Cameron and Joyce 2001: 224; Cromie 1989: 127; Lawson et al. 2001), and was supported in this.

I would have to do a course, and don't have time for that.

Another indicated that they used a computer in the business, but found:

It takes an enormous amount of time to learn how to use computers. You just get comfortable with one process and you have to learn another. It is simpler not to use them at all.

Other similar comments included:

It is too dear to keep on training people (Panel and paint supplier).

The computer wastes time, and is too dear to fix (An outdoor power centre).

It is difficult to change staff attitudes (A building supplier).

Takes too much time (A dental clinic).

We all know the old systems – it takes too long to learn new ones which we don't really need (A liquor shop).

Another said they wanted to do it, but did not have the time.

#### **5.8.4 No computer**

In addition, 16% did not have a computer. Considering the pervasiveness of computers in the business world, this was surprising. While only four (16%) gave as the reason that they had no computer, 60% had a computer they used in the business already. If the other 24% (that did not have a computer they used in the business) had been prepared to adopt e-commerce they apparently would have been willing to purchase the necessary equipment, as they did not give this as a reason for not adopting.

#### **5.8.5 Computer illiterate**

Another 12% said they were not computer literate, and they did not have any plans to learn how to operate a computer. They were content with the way they did things now, and did not want to complicate matters by introducing a factor that they did not need.

Lawrence saw this as managers' preference for manual methods of undertaking business (1997: 595). Being computer illiterate also fits in with the innovation diffusion factor that notes that the innovation is unlikely to be adopted when it is not compatible with the culture of the organisation. If SMEs are not computer literate, then they are less likely to adopt an innovation that requires them to use computers. Perhaps this also was a generational factor, as many of the SMEs in this sample were in the older age group. (For further discussion on this, see *Chapter Seven Section 7.4.1.*)

### **5.8.6 Too small**

Only two SMEs saw themselves as too small to adopt e-commerce. Perhaps this reason given by the non-adopters could fit into lack of awareness of the potential for their business. Other very small (micro-businesses) have found that their size has been no barrier to their competing globally through e-commerce. In contrast to an earlier study on e-commerce and SMEs in Australia (CEC Monash 1996 - a study cited by Poon 1998a, but which this researcher was unable to locate) which concluded that micro-sized businesses were not likely to benefit from internet commerce, Poon, in his PhD thesis, consistently noted that:

It was the smallest size firms which exploited internet commerce most actively and became the largest group of small firms online in all my samples (1998a: 374).

### **5.8.7 Lack of awareness of potential**

Despite the amount of promotion by various agencies (AUSe.NET 2000, 2001, 2002; NOIE 1999a, 1999b, 1999c, 1999d, 1999e, 2002), lack of awareness of the potential of e-commerce remained high. Of those who said they were satisfied with the way they did things now, two SMEs said they could not see what it could do for their business. Another five were content to leave things as they were, without investigating any further. Several others indicated they were too busy to take the time to look into what it could do for them. One, an office furniture wholesaler and manufacturer, believed it suited only those businesses with high volume sales. As his customers had not demanded it, he saw no need to look into it. A pharmacist expressed similar beliefs. They could not see any

potential benefits for their businesses. Obviously there is something missing in the communication process between the promotion of e-commerce and the reception of the knowledge. This is something that could be the subject of further research.

One, a gourmet catering service, expressed disdain for the use of e-commerce.

We think web sites are cold and we offer a *personalised* service.

Yet, paradoxically, this same company did see that it could offer them some benefits, particularly in the area of taking orders online as a time saving, and improving business efficiencies.

### **5.8.8 Not interested**

Another two SMEs confessed they were just not interested. Did this lack of interest stem from lack of knowledge? When they were entrepreneurial in nature and willing to introduce other innovations into their business, why were they not willing to consider the introduction of e-commerce? Was it that e-commerce did not fit into the culture of their existing business – what Rogers' calls lack of compatibility with the business? If an innovation lacks compatibility then it will not be adopted (1995: 15-16).

### **5.8.9 Lack of security**

Although there was a high level of concern about the safety of online transactions among those SMEs that *had* adopted, among the non-adopters, security of various aspects (such as of client information) was of concern to only two (8%). One SME in this sample expressed concern about the security of online commerce.

I'm not sure transactions are fully tamper-proof.

The other mentioned the number of reports in the media where SMEs had been burgled and lost their equipment. He did not want 'to attract thieves' - but perhaps this was just another way of saying he was not interested, or perhaps he was unaware of the potential for his business. (His business was situated in one of the regional industrial areas which had suffered badly from regular incursions by thieves targeting computer technology, so

much so that the local industry association had established its own local security group to supplement what they considered inadequate police patrols. Perhaps his concern was well founded.)

### **5.8.10 Future plans**

Interestingly, although none of the SMEs in this part of the study had actually adopted e-commerce, five cases or 20% of them indicated they planned to do so later on. Some of them indicated that they were learning about it, but could not spend as much time as they would like on the process. These potential adopters also realised the importance of doing it properly or not at all. One, using time and cost as disincentives, said

It must be 100% right, and we just don't have the resources to make that commitment at present (A pharmacy).

Another, who is planning to adopt in the near future, is putting his planning strategy into operation to make sure it will all flow smoothly. He said that there is no sense in getting started unless you have the full capacity to back-up.

When we get orders, we want to be able to deliver them next day anywhere in Australia. Our business will become the sausage equivalent of Amazon.com. What Amazon.com is to books, Bonzer Bangers will be to sausages (A butchery).

We will adopt in the future, but at present the manual systems we use are working well (A chiropractor).

Another had bought the business only a year ago (after having worked in it), and wanted to increase and stabilise things as they were before undertaking new processes.

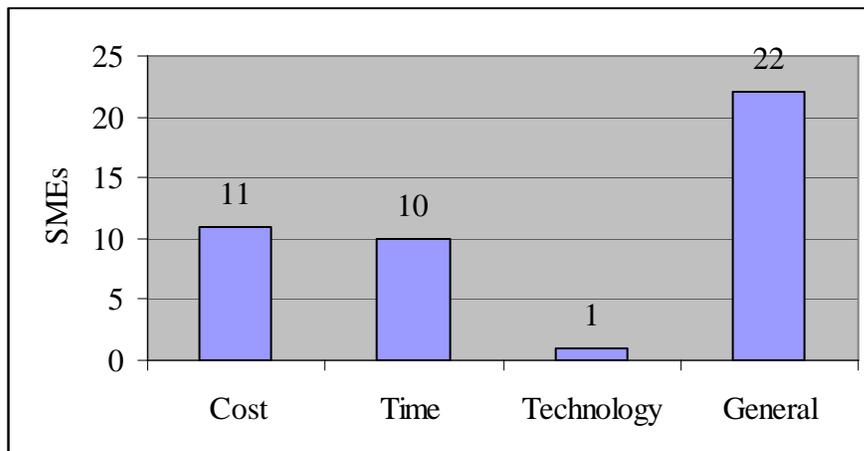
It is important to understand the paper work which is very involved, and get processes streamlined. The business is growing very rapidly, and it [adopting e-commerce] would divert staff and take too much time at this stage. We plan to move to it gradually (A gynaecologist).

Did the majority (80%) have no real intention of considering the adoption, so were not even thinking of the full implications of what adoption would mean? Some of the reasons given for not adopting seemed almost spurious, but were perhaps based on lack of knowledge or upon lack of awareness of the potential of what e-commerce could achieve for their business. Or were there real disincentives that deterred them from adopting?

## 5.9 Reasons given for not adopting e-commerce

Non-adopter SMEs were asked if they could indicate what, specifically, had held them back from adopting e-commerce. This question was closely related to the question that asked them why they had not adopted. Having given their reasons for not adopting e-commerce, SMEs were disinclined to enlarge on the disincentives that had held them back from adopting. There is little difference between the results of this section and the one above.

**Fig. 5.9.1 Disincentives given by non-adopters for not adopting**



**Cost** again was top of the list, with 44% indicating that cost had been a consideration. Cost and time were very closely related, as most SMEs measure their time in financial terms (Brown 2002). Cost considerations include – as well as time – the cost of other resources, technology, of training staff and the cost of building web sites. It seemed quite apparent that they had not really investigated the cost of incorporating online functions into their business processes, but were merely responding to their presumptions and biases.

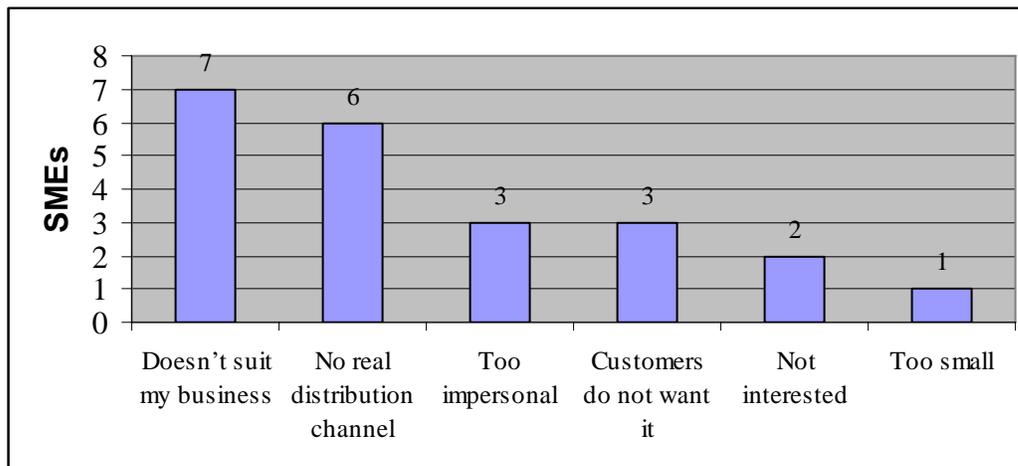
**Time** was given both as a disincentive to the adoption process as well as a reason for not adopting, with 40% of SMEs indicating in some way that the time needed to learn

something new was too great for them to bother engaging in it - supporting the findings of Anthony et al. (1999: 263-266). Although there were a number of reasons offered under time, cost and technology, figures for the individual reasons were so low, these have been aggregated under the broader headings.

Three cases (or 12%) indicated that they saw no return on investment of time (and resources, but time was specifically mentioned by two of the three). Cost included concerns about security and privacy, with three mentioning security here, although only two had previously nominated it as the main reason for not adopting. Only one SME (4%) said that technological issues were a disincentive.

However, as so many (88%) gave general reasons, these have been separated out, as in Fig. 5.9.2.

**Fig. 5.9.2 General disincentives**



A key finding of the 2002 *Yellow Pages E-Business Report* was:

The main reason cited by SMEs for not engaging in e-commerce was the belief e-commerce would not work for their products or services (2002: 2).

The belief that e-commerce would not work for their products or services or was *not suitable* was also the primary reason given by SMEs in this study that had not adopted e-commerce, with 28% nominating it. While 28% said it did not suit their business, 24%

did not see it as a real *distribution channel*. This factor needs to be considered by government and addressed when promoting the adoption of e-commerce by SMEs generally.

Twelve per cent of non-adopters (three cases) claimed that e-commerce was ‘too *impersonal*’, while the same number said that their *customers* did not want it. An honest two cases said they were just *not interested*, while one said he was just *too small*. (Yet in response to Question 2, two SMEs had said they were too small to consider adopting. SMEs were not always consistent in their responses.)

Even though these SMEs had not adopted e-commerce, they did not see any real disincentives. It was almost as if they had not investigated the potential of e-commerce to see what it could potentially offer their particular business, so did not even see what could be real disincentives.

What was the situation with other factors of the demand aspect of adoption, factors relating to characteristics of the firm?

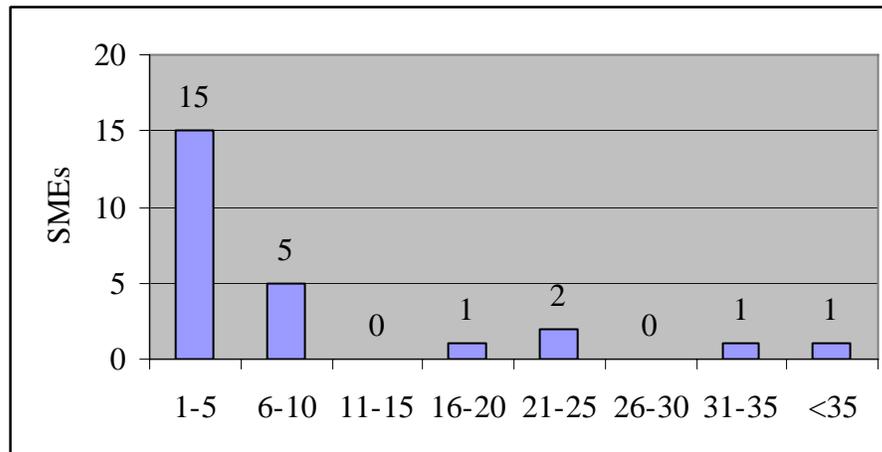
## **5.10 Characteristics of the firm**

### **5.10.1 Size of the firm**

As noted further in the following chapter [Section 6.9.1], the matter of firm size seems to be rather a contradictory factor. SMEs in this study were measured for size by the number of employees they employed. They were not asked questions about capital or turnover as it was felt that these questions were intrusive and would generate distrust.

Small size seems to be a factor favouring adoption when the innovation is of ICT-related technologies (Anthony 1999: 255-256; Lai 1992: 93-94). Hence, following this line of reasoning, as e-commerce is an ICT-related technology, its adoption should be favoured by smaller firms. Yet, this did not appear to be the case in this part of this study.

Fig. 5.10.1 shows the size of SMEs that had not adopted.

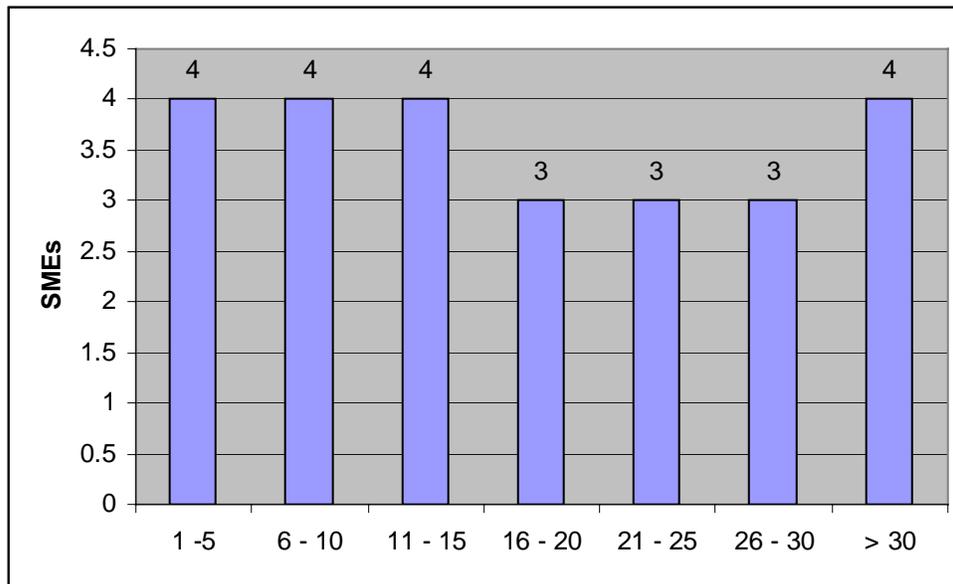
**Fig. 5.10.1 Number of employees of non-adopter SMEs**

As can be seen in the figure above, most of these SMEs were micro businesses (that is, with five or less than five full time employees) – 60%. For the most part, firms that had not adopted e-commerce were small in size. Only two had more than 30 employees, with one of these having ‘more than 35’ employees. (Several SMEs were unsure of the exact number of employees they had, merely saying ‘over 20’ or ‘over 35’. The base number given - 20 or 35 - was used as the number employed.)

The 25 cases in this section of the study employed only 218 workers and they used no contractors. The average number of FTEs employed by the non-adopter SMEs was 8.7. Thus, on the whole, non-adopter SMEs in this section of the study were quite small, contributing relatively little to the ACT and national economy. That these SMEs were all so small may help to explain the low level of interest in adoption of e-commerce.

### **10.5.2 Number of years in business**

Were the SMEs in this study well established or were they relatively new? Was the length of time they had been in business a factor in their consideration of whether they should adopt?

**Fig. 5.10.2 Number of years non-adopter SMEs had been in business**

As can be seen from Fig. 5.10.2, the non-adopter SMEs were quite well established in business. Only 20% (or four cases) had been operating for less than five years, the same number as had been operating for more than 30 years. In all they averaged 19 years in business.

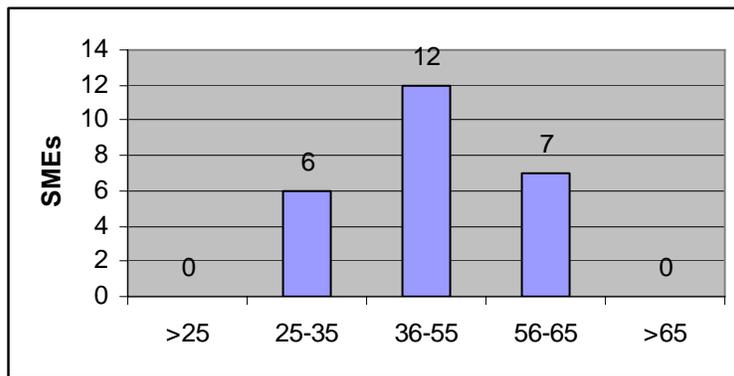
Even though 64% of them considered themselves entrepreneurs (or slightly risk taking in their attitudes), that they had been in business for so long may have made them more conservative in their outlook, with this affecting the rate at which they adopted e-commerce. Possibly that they had been successful in business for lengthy periods of time meant that they did not need to look for other methods of expanding their business, so saw e-commerce as unnecessary to them. They were comfortable with the way in which they were doing business, and felt successful without looking for further enhancements.

### **5.10.3 Age level of decision-makers**

As can be seen from Fig. 5.10.3, the non-adopters were fairly evenly distributed over all age groups, forming a normal distribution.

There was none below the age of 25 years. There were several people who said they had been under 25 years when they had started their business, but now they were in older age groups. The majority of SMEs who had not adopted were in the 36-50 age group. There was a tendency for them to be slightly older, with the majority being over 35 years. Only one quarter (24%) were 35 years or younger.

**Fig. 5.10.3 Age level of non-adopter SMEs**



There were no respondents aged over 65 in the non-adopters. Perhaps this is partly explained by the educational level where 52% of the owner/operators had either gained an apprenticeship or had completed high school as their top level of education. Perhaps they belonged to occupations where the norm was for people to retire at 65 so that they did not continue working or set out upon second careers late in life.

It can be readily seen that SMEs operated by the non-adopters were:

- Quite small in size;
- Well established in their businesses, having been operating in them for a substantial number of years; and that
- The principal decision-makers in them were in the older groups.

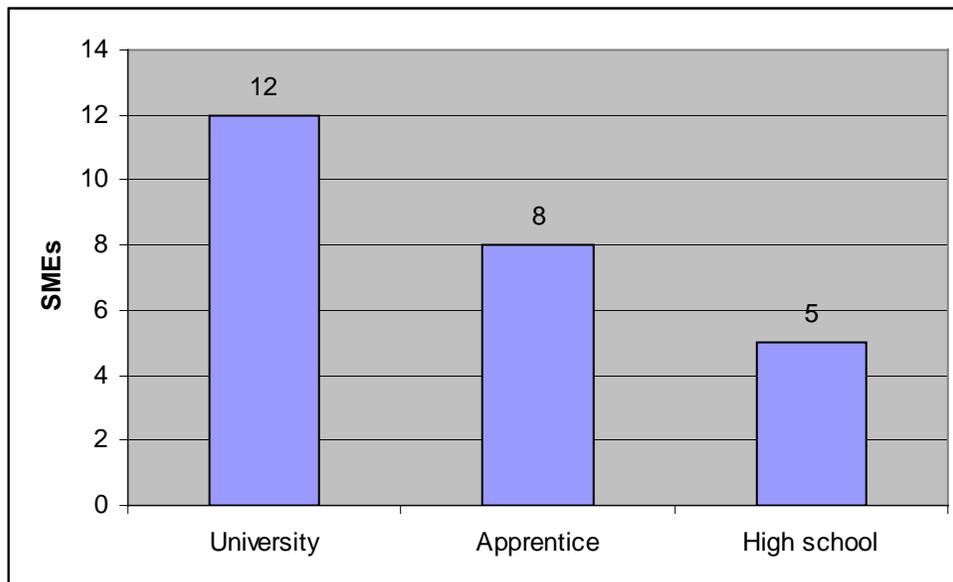
What was their educational level? Was this a factor in their decision not to adopt e-commerce?

### 5.10.4 Educational level of non-adopter decision-makers

That the ACT has the highest rate in Australia of people with university degrees (ACT Government 2000) was reflected in this section of the study. Only 20% had completed their education at high school, another 32% had an apprenticeship, while almost half - 48% - had completed a university degree. Considering the age level of the non-adopters, the number that hold a university degree is quite high. The majority of them belong to the age level when it would have been more difficult to gain a university degree. (In those years students were expected to pay full fees with no assistance such as delayed payment of Higher Education Contribution Scheme (HECS) available.)

Fig. 5.10.4 shows the educational level of the non-adopter decision-makers.

**Fig. 5.10.4 Highest educational level of non-adopter SMEs**



Education level did not seem to be a factor in the adoption decision.

## 5.11 In summary

In this chapter the responses from those SMEs that had not adopted e-commerce were analysed. These SMEs were first asked if they saw themselves as entrepreneurs, the sort of business people who would adopt innovations readily. Two thirds of them (64%)

believed they were entrepreneurial, and they supported this by giving examples of innovations they had introduced into their business. The remaining third did not see themselves as entrepreneurial, and they did not adopt innovations into their business. One could wonder why the two thirds who are entrepreneurial in other areas of their business have not adopted e-commerce. Only 5 (20%) of them indicated that they planned to do so some time in the future.

If they had not adopted, was it because they did not understand what e-commerce meant? Forty percent appeared to have a full awareness of what it meant, while one quarter (24%) felt it was limited to online banking. Of the remaining 36%, 16% had 'very limited' knowledge, 12% had 'absolutely no' knowledge about it, and 8% had 'some' knowledge. Yet, even though 40% (or 10 cases) appeared to understand what it meant, only 2 cases of the 10 was in the process of considering future adoption. Had the method by which they had gained their information been part of the reason they did not plan to adopt?

As channels of communication, it had been anticipated that membership of trade, industry or professional associations or attendance at seminars would have provided a source of information, but this did not appear to be so. Although only 40% appeared to understand what e-commerce meant, 76% were members of their professional association. Two thirds (68%) of them attended seminars where they would be exposed to new ideas, yet seminars were not a source of information about e-commerce.

There appeared to be no external prompters to adopt. Banks had provided the prompt to a substantial number of adopter SMEs to begin the process of adoption, but with the non-adopter SMEs, banks played no role. In only three cases had financial institutions approached the SMEs to suggest they may use online banking, but not one of the SMEs had responded positively.

As the SMEs had not adopted, had not considered adopting, had received no prompt from their professional associations or from seminars attended or from banks, perhaps they did not have the necessary infrastructure to support the adoption. It appears this was a difficulty. Sixty per cent of them used a computer in their business, but most appeared to

use them in a limited fashion. For instance, not one used online access to send in their BAS.

When asked if they had considered if they could possibly benefit from adopting e-commerce, not surprisingly, most of them could see few potential benefits. One fifth (20%) of them believed that they could probably make time savings because processes could be automated. Four cases felt that it would be possible to improve business efficiencies. Yet these were not the same four that were considering adoption in the near future.

How important were the perceived disincentives to their decision not to adopt? Was it that the perceived disincentives were greater than the perceived benefits? Cost was the most commonly named disincentive – cost in terms of cash outlay, in terms of time to learn what was required, and the cost of resources generally. This was nominated by 40% of the non-adopter SMEs. Lack of time was quoted as a significant resource factor. Other disincentives were they were satisfied with the way they did things now (20%), did not know enough about it (some were currently learning) (20%), had no computer (16%), or were not computer literate (12%). Other reasons were less important, each being nominated by only one SME.

This chapter has looked at the entrepreneurial attitudes of non-adopter SMEs, their knowledge of e-commerce, what exposure they had to e-commerce, its potential benefits and the disincentives that deterred them from adopting. The next chapter looks at the SMEs that have adopted e-commerce.

## **Chapter Six Analysis of results of adopters**

## **6.1 Introduction**

This section of the study focussed on those SMEs that had adopted e-commerce. The order of the questions was designed for interview purposes, but for clarity of presentation, the results are presented in a different order. In discussing the results, like information has been combined so that it reads coherently. Responses to Question 20(a) have been used in Chapter Three to substantiate the methodology used, and omitted from this chapter. In presenting these results the order has been as follows: (Appendix Eleven shows the same information in slightly more detail.)

### **6.2 Making the decision**

The SMEs under study had already adopted e-commerce – who made the decision? Who was responsible for the decision to adopt e-commerce? Who took responsibility for the process? What were the triggers that pushed them into adopting?

### **6.3 Decision makers as entrepreneurs and early adopters**

As the owners/managers have adopted e-commerce, can they be considered entrepreneurs? Have they evidenced this trait by introducing other innovations into the business?

### **6.4 Finding out about the potential of e-commerce**

How did these people find out about e-commerce and its potential for business? Are they opinion leaders? Do they belong to professional associations or did they attend seminars where they would have been exposed to new ideas?

### **6.5 Implementing e-commerce**

Once they had made the decision to adopt, what were the first steps they took? What was the order of implementation?

### **6.6 Using e-commerce**

Having adopted, what elements of e-commerce were they using in their business? Have they automated any of these elements? If they have a web site, how do they use it for the business, and how do they promote it?

### ***6.7 Anticipating and receiving competitive or economic advantage***

They must have anticipated receiving benefits from adopting – what were these possible benefits? What actual benefits did they achieve? Did they receive any non-tangible benefits?

### ***6.8 Disincentives to the adoption process***

Even though they had adopted, had there been any factors that had been disincentives to the adoption process? Were there resource implications? If so, what resource implications were there – time, capital, personnel, technology or security? In addition to the disincentives, what hurdles or obstacles did they encounter during the process? What disadvantages have they noticed from adopting? What has been the greatest disadvantage?

### ***6.9 Characteristics of the firm***

Did the type of business, size of the business (measured in number of employees) age and educational level of decision-makers, and the number of years the business had been operating have an impact on the adoption decision?

Finally what did they learn from the whole process? If they could have done things differently, what would they have changed? What advice could they offer to others contemplating the adoption of e-commerce? This is discussed in the next chapter, Chapter Seven.

## **6.2 Making the decision**

The SMEs in this section of the study had already adopted e-commerce – who made the decision? Who was responsible for the decision to adopt e-commerce? Who took responsibility for the process?

### **6.2.1 Who took responsibility?**

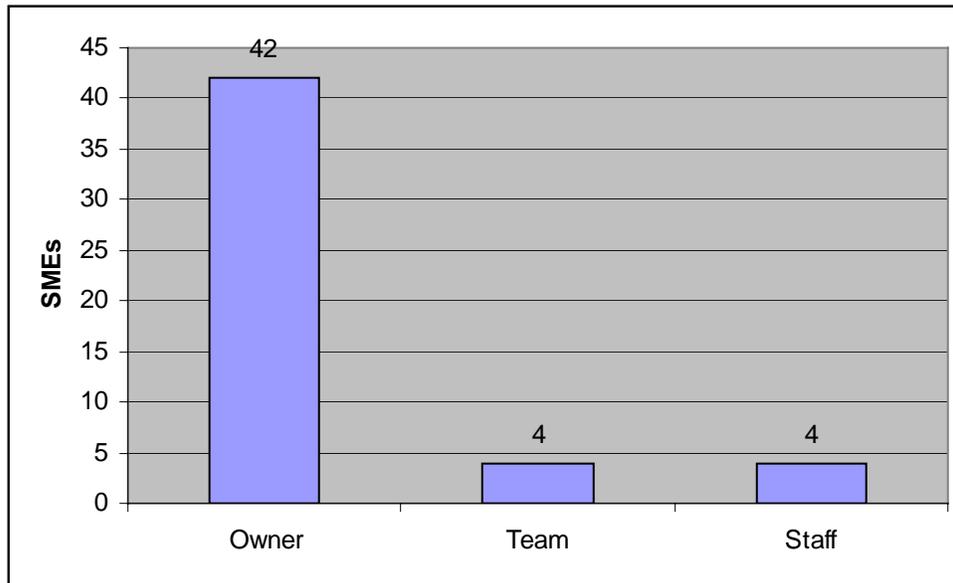
An innovation will be adopted only if it has support from senior management. Only the support of top management can ensure the allocation of resources necessary to implement the innovation (Begin and Boisvert 2002: 22-23; Daft and Becker 1978: 13-14; Sanders and Bell [2001]: 23; Thong et al. 1996: 248-251). In his study described in *Implementation of organizational innovation*, Clayton (1997) cogently argues that one of the most significant enablers of adoption is the availability of resources to fund the adoption. Only senior management (or the support of senior management) can ensure the availability of resources. Clayton also added the attribute of ownership which he found to be highly significant to the successful adoption of an innovation within organisations (1997: 28-29, 32-33, 41-42). Although the person who seemed to have the strongest ownership of the adoption was not necessarily in a position of leadership, that person was the one who seemed to make major critical decisions relating to the process. The adoption succeeded only where the person/s instituting it had a major voice in decisions surrounding the whole process. If this person were not in a senior management position, he needed to have the support of that management. It can be expected that all companies that have succeeded in e-commerce activities stand out because of senior management's commitment to developing internet activities. They have made these activities a necessary component of the business strategy.

Consequently, leadership by executives is an essential inductor for deployment of electronic commerce (Begin and Boisvert 2002: 22)

In light of this, it was believed that if the decision to adopt e-commerce came from senior management or was supported by them then appropriate resources would be allocated and e-commerce would be more likely to be adopted – and adopted successfully.

Thus this question was included to discover who made the decision to adopt e-commerce and who actually implemented the process. Did the person/s implementing the process have the support of senior management?

[All data provided in figures is also available in tables included in Appendix Ten.]

**Fig. 6.2.1 Responsibility for the process**

In 84% of cases in this section of the study the person/s who initiated the process of adoption was an owner, partner or director of the organisation. This supports Daft and Becker's contention (1978) that an innovation is more likely to be adopted if it has the support of senior management. In four cases, the initiator was a staff member who had consent or agreement from senior management.

(In this discussion, as in Chapter Five, where results are 10% or over, results will be given in percentages. When results are below 10%, they will be given as the number of cases.)

In the other four cases, the process was a team effort. In two instances it had been initiated by the IT section of the business without full management support, and in each of these instances, the management of the SME was disillusioned with the result.

They did not even ask what were our requirements – especially other sites we should be linked to – so it is practically impossible for visitors to find our site (#34).

The IT systems people saw it as a technology problem rather than an information issue and just took the initiative without considering the business side of things (#37).

(The # given in brackets after a quote is the number of the SME that made the statement. It is used throughout this thesis to identify SMEs while retaining their confidentiality.)

In other cases of the team effort, management had been involved in the decision-making process, and there was a greater level of satisfaction with the result.

In 20% of cases the owner instigated the process, but hired other people to do the work – family members or friends (four cases), other staff members (four cases), or an outside consultant (two cases). Both those who hired outside consultants were disappointed with the result. They both felt locked into a system over which they had no control, and were forced to pay dearly for even minor changes (and even corrections of errors made by consultants) they wanted made – a point made by Lawson et al. (2001).

In only one instance was ownership held by one who did not have the support of senior management initially. (He was a branch manager.) He expressed his frustration at the difficulty in getting senior management to understand the importance of moving the business online. He said:

I bore most of the initial cost myself, but now that it is working senior management cannot sing its praises loudly enough. It has enabled the business to expand in ways they had not expected (#2).

On the whole, most were satisfied with the final technical result. However, there was dissatisfaction with the business strategy aspect of it. (For further discussion on that aspect, see *Chapter Eight Section 8.3.5 Plan your strategy – conduct a needs analysis.*) Thus it is quite clear that successful adoption of e-commerce resulted when the process was initiated by someone in the company who was in a decision-making position. Once the decision to adopt was made, it seemed to work better where the process was instituted by someone directly connected to the company (and preferably aware of the business goals), whether it be one of the owners, a staff member or even a family member or friend. They were able to assume ownership of the process. One older owner said:

I could see that computers were going to be the way to go, so I enrolled in and attended one of those courses for senior people at the local community college (#14).

It seems from these results that the team responsible for development of the company web site should include not only representatives who can carry out the technical aspects

of what is required, but also management personnel who can both ensure the necessary resources are available as well as contribute a knowledge of business strategies, goals and objectives.

What were the triggers that pushed SMEs into adopting e-commerce?

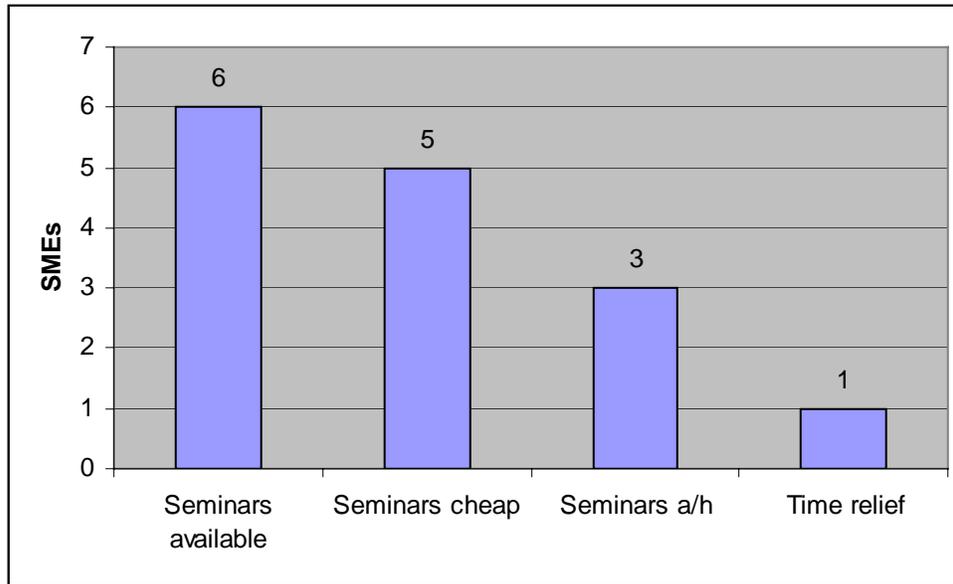
### **6.2.2 What triggers pushed you to adopt?**

The many benefits perceived to derive from engaging in e-commerce are seen as triggers or enablers to the adoption of e-commerce. [See *Chapter Two Section 2.4.2 Perceived incentives to the adoption of e-commerce* for a full list of these.] It is widely accepted that there are many advantages to be gained from participating in e-commerce. Although SMEs have been, for the most part, seemingly more reluctant or slower than large businesses to adopt e-commerce, they still appear to appreciate the benefits to be derived from engaging in it.

This question was included to find out if the SMEs in this study were pushed to adopt e-commerce by the same triggers as noted in the literature.

#### **6.2.2.1 Cost and awareness issues**

As a result of studies that showed that significant cost benefits could accrue from the adoption of e-commerce, it was assumed that cost issues would have been considered important triggers in the adoption by SMEs. Cost of adoption is closely related to the level of awareness of adopters. If SMEs do not have the knowledge, then there is a cost involved in gaining that knowledge. Fig. 6.2.2 summarises the cost to SMEs of increasing awareness of e-commerce through the availability of seminars.

**Fig. 6.2.2 Issues relating to seminars that were triggers in the adoption process**

**1. *There were seminars to teach me and my staff about the benefits and how to use e-commerce.***

There is an inequality of distribution in IT knowledge, skills and resources necessary to access online services and information among different groups in modern society (ACT 2001: 9).

This comment from the *ACT Digital Divide Task Force to the Chief Minister*, although written about the ACT population in general, applies equally to SMEs. There is growing evidence from surveys (ABS 1999b; NOIE 2000e; Yellow Pages 1998) that small business is falling behind in the race for sustainable and valuable use of online opportunities. Much of their tardiness relates to a lack of awareness. In an endeavour to overcome this lack of knowledge and to increase the level of awareness for SMEs, the ACT Government had run a number of seminars on electronic commerce to which SMEs had been invited (ACT Government 2002). At these seminars various speakers spoke of the advantages of e-commerce, of the ways in which it could be adopted, and gave a number of case studies of successes. These seminars had all been well attended (personal experience of the researcher). Thus it was surprising that so few – only 12% – of SMEs surveyed indicated they had attended any of these seminars and found them useful. Several acknowledged they had received invitations, but ‘we were too busy to attend’

(#20), ‘could not find time to attend’ (#3), ‘did not think I would learn anything I did not already know’ (#1), or ‘felt it would not apply to my business’ (#41). To SMEs time equates with money.

Yet, when asked in Question 18 (relating to whether they considered themselves innovators) if they attended seminars the response was quite different. Of the 88% who said they believed they were entrepreneurs, only two said they did not have time to attend seminars. The remainder felt that these were an important means of keeping up-to-date with what was happening in their field, but was not necessarily important in their decision to go online. It appears that the government-sponsored seminars need to be more specifically directed to their business or industry so that SMEs can be drawn to attend, and can then see the possible benefits from them for their particular business.

As can be seen from Fig. 6.2.2, in this section of this study cost issues allied to overcoming lack of awareness through attendance at seminars were not considered significant by any of the SMEs as triggers that pushed them to adopting e-commerce

### ***2. These seminars were relatively cheap or even free.***

Cost of seminars was not really considered important. Only 10% said that this had been a factor in their decision-making process. Many of the seminars attended were run by their professional or trade organizations; a few were free, being included in the cost of membership, but most were at a cost, and as one interviewee said ‘They know how to charge!’ (#24). A number of SMEs were particularly critical of the cost of activities run by the Chamber of Business, saying that only larger companies could afford to maintain membership and attend their seminars.

### ***3. These seminars were provided outside of business hours.***

It had been anticipated that as SMEs suffer from what has been called ‘time poverty’ (Brown 2001) most would have chosen to attend seminars provided outside of business hours when they were available. Although 12% indicated they had attended seminars, only 3 SMEs agreed that after-hour seminars were a consideration in their adoption of e-

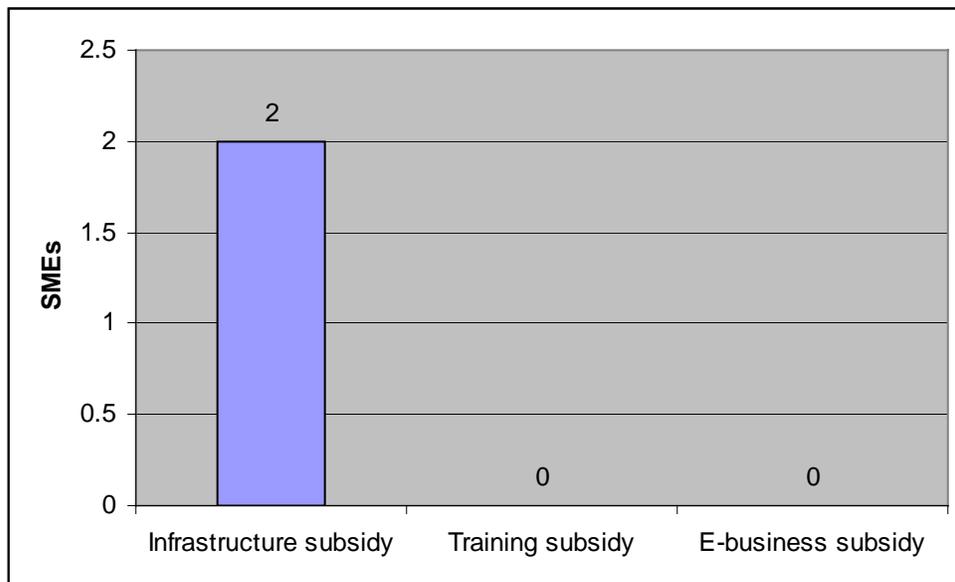
commerce. Another (#7) complained that ‘by the time I have finished at work, the last thing I want to do is to go to a seminar’, an attitude supported by several other SMEs – #15, #17, #19, #33, #41.

**4. I was able to get time relief from my business.**

Being able to get time relief from the business was not a factor in their adoption. Only one SME indicated that he had been able to get time off to attend seminars, while the remaining 98% had not. This is not surprising in SMEs where time is at a premium. Lack of time is constantly given as the reason for not being able to do things. How then could they justify taking time off from the business to attend seminars when they always have so many other demands on them?

**5. I was subsidised for the costs involved of buying equipment, providing training, installing the infrastructure needed, establishing the e-business side of things, or something else.**

*Fig. 6.2.3 Subsidies received that were triggers in the adoption process*



It can be seen from Fig. 6.2.3 that not one SME received any subsidy at all – not for the purchase of equipment, training, or establishing the e-business side of things – although the issue of subsidies had been a point that those who piloted the questionnaire felt should be included. The high cost of providing for these factors had been a consideration for many when they were making the decision to adopt e-commerce, but had not been a real deterrent.

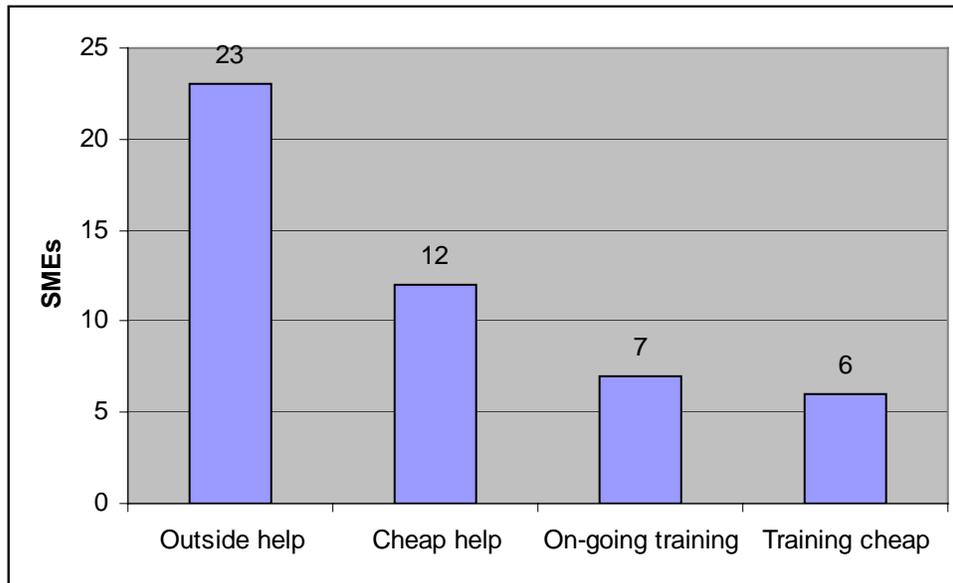
The cost of installing the infrastructure needed – hardware, special software, ADSL or other broadband facilities – was noted by SMEs in this section of the study as being very high (but had not proved to be a deterrent to adoption). For many it had been much higher than anticipated when they first decided to adopt e-commerce. The provision of subsidies could have made a difference to the ease with which they managed the process financially. However, only 2 SMEs indicated that they received any form of subsidy, and that it was very limited. The remaining 96% received no subsidy of any sort.

Several businesses mentioned the government grant of \$200 offered to help them establish or update their accounting systems to accommodate the new tax system when GST was introduced. When asked if this was a factor in their establishing e-commerce, they all laughed rather ironically, saying such a figure was ‘laughable’ when considering the real costs involved.

Subsidies were not considered a trigger in pushing SMEs to adopt e-commerce.

### **6.2.2.2 Infrastructure help**

If SMEs could obtain assistance in setting up to get their business online, this could perhaps assist them in making the decision to adopt. Buckland (1995) had found that the perceived availability of technical support enhanced the adoption of IT generally. This same expectation was extrapolated to SMEs in this study. Such assistance could take a number of forms. Fig. 6.2.4 illustrates the number of SMEs that did obtain some help in establishing the necessary infrastructure.

**Fig. 6.2.4 Infrastructure help available**

**6. *Someone from outside was able to come into the business to assist me and my staff in getting it established.***

Almost half (46%) of the adopter SMEs indicated that outside help had been available to them (particularly in the early stages) of establishing e-commerce. This help had been instrumental in their successful adoption. Without it, things would have been much harder for them. This help was in the form of advice or in actual hands-on assistance. Often it came from family members, friends or business acquaintances, a situation similar to that reported by Singh and Slegers (1998: 13) who found that it was often ‘family members, friends and industry organizations that were most effective in demonstrating what the internet could do for the business’.

**7. *This help was relatively cheap or even free.***

Young graduates, employees who are familiar with computers and seasoned internet users, often spearhead the adoption of e-commerce. Some may even act as initiators (Begin and Boisvert (2002: 23).

For just on one quarter of the adopter SMEs (24%), the help that was available was cheap or even free. In most instances it came from a more knowledgeable friend or family

member, supporting the views of Begin and Boisvert (2002). In one instance, it came from a neighbouring business acquaintance who had just gone through the process himself and was willing to share his experiences. In another, it came from a class of students at a local university who were doing it as a class project. (The SME was satisfied with the initial result, but is now in the process of upgrading.)

### ***8. Ongoing training is available***

There was a lack of on-going training available from most people used to help set up the system, according to 86% of the SMEs in this section of the study. This was a matter of concern – even complaint – as few felt competent to assume the responsibility for the on-going operation of the process without further training. Very few in the technical chain were willing to provide training – not consultants, web site developers, internet providers, nor broadband providers. Most SMEs expected that the cost of training would have been included as part of the package for which they contracted, but usually it was available only at a further high cost. (This is further discussed as one of the major obstacles experienced in *Section 6.8 Resource implications as disincentives*.)

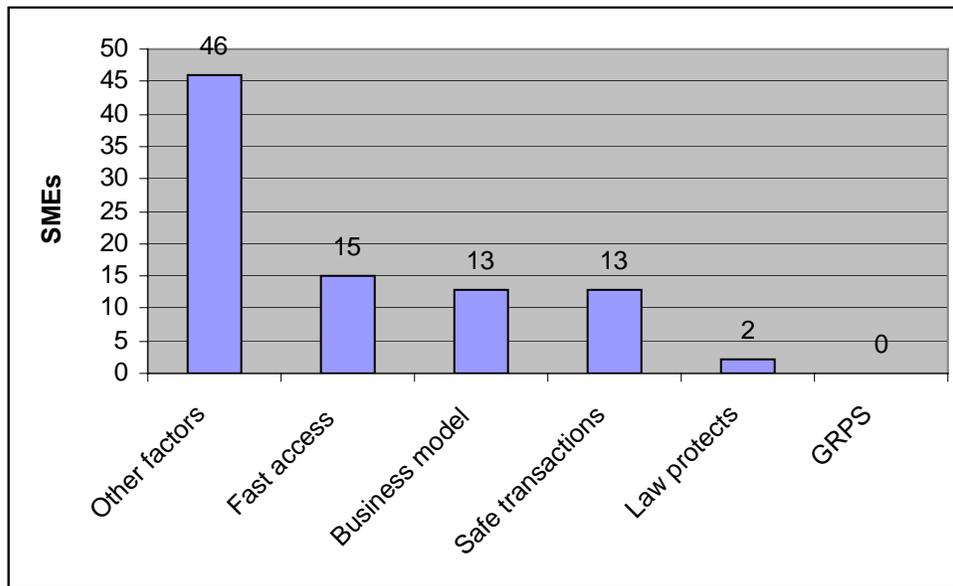
### ***9. This training was relatively cheap or even free***

As noted in the previous part question, training was available usually only at a high on-going cost. Only 12% of the adopter SMEs were able to obtain training that was cheap or even free, or as part of a package of services.

### **6.2.2.3 General factors**

Other factors did not fit into any of the previous 3 sections, but as numbers for each of them are fairly low, they are grouped together as ‘general factors’.

Fig. 6.2.5 illustrates responses to general factors.

**Fig. 6.2.5 General factors**

**10. Fast access to the internet was available.**

Although 30% of SMEs in this section of the study indicated that the availability of fast internet access was a consideration, very few of these used broadband access – in direct contradiction to the expectations discussed in *Section 2.6 Technical infrastructure required to facilitate e-commerce*, which suggested that three quarters of the population of adopters could be expected to use broadband. Indeed, one in this group used dial-up access, but did not need high speed transmission, so was quite happy with the ‘slow’ access, calling it ‘fast enough’.

**11. I was able to locate a suitable business model for e-commerce.**

Obtaining a business model that suited their particular style of business proved to be a difficulty for most SMEs. Only one quarter of adopter SMEs (26%) were able to locate a suitable business model for their type of business. A number contracted to have specific models built for them, while others had commercial products modified to suit their business.

***12. I felt comfortable with the safety of internet transactions.***

The part question was included to validate Part 13. It was anticipated that if SMEs believed that the law did not guarantee protection of all aspects of e-commerce, then, similarly, they would not feel comfortable with the safety of internet transactions. Interestingly, although only two SMEs believed that the law guaranteed protection, 26% of them felt comfortable with the safety of internet transactions. The remainder did not express any concern one way or another.

***13. The law guarantees protection of all aspects of e-commerce, such as validation of orders and payment for goods sent.***

In concert with the concerns highlighted by a number of authors (Cho and Clark 2000; Hoyle 2001; Willis 2000), legal issues remained of concern to many of the SMEs. Most SMEs in this section of the study (96%) were aware of how little they were protected by the law, with only two SMEs believing they were protected. A number of the others had experiences they related, or media stories which they remembered. In general, they did *not* feel that the law protected them.

Email communication can be effectively taken as a legal contract nowadays. We rely on email communications for a lot of contractual information. Yet, we cannot rely on the law to support us (#5).

Stories in the media were frequently quoted as supporting reasons they could not trust the law. When asked if they knew of the government policy in this regard, the response was that policy was not enough, but needed to be followed up with by action. (This question was not asked of all, but arose initially out of discussion that led to it. After that, when discussion led in that direction, the researcher continued to ask about it but responses were not analysed.) SMEs' level of concern had increased dramatically once they had adopted.

**14. Telstra's new wire-less technology, general packet radio service (GRPS) for mobile telephones was an appropriate means of gaining access to the internet for my business.**

The advent of Telstra's general packet radio service (GRPS) augured great potential for the extension of e-commerce (Frith 2001). However, of the businesses in this study, not one had even considered it as a factor in its adoption. Indeed, most saw it only as a 'toy' rather like 'text messaging that teenagers use' (#5). They all used other means of accessing the internet. SETEL, however, in June of 2003, announced that it believed that the latest version of mobile phones will stimulate e-commerce with its online text messaging. It will offer greater opportunities for businesses outside the ACT, such as in rural areas on the South Coast and Shoalhaven area (NatTel Pty Ltd 1999:19-21).

**15. Is there anything else that anyone could do or did to help you to adopt e-commerce? In other words, were there any other factors that persuaded you to adopt e-commerce?**

Most SMEs (92%) indicated that there were other factors that stimulated them to adopt e-commerce.

What triggered the development of e-commerce for us was the need for communicating and managing internal overhead functions. We have staff all over Australia. Thus it is essential to our business. It is the core of our business. Without it we would be a 'Mickey Mouse company'. Without it we would not be a company – we would be spending most of our time on the phone (#5).

According to Ah-Wong (2001), the triggers or enablers or drivers of e-commerce are perceived as the technological, organisational and governmental factors which encourage e-commerce to boom – telecommunications advances following deregulation and increased competition, decrease in the cost of hardware and software, and global marketing opportunities. None of these seemed to be significant in the adoption of e-commerce by the SMEs in this study. The most important factors in persuading a SME to adopt e-commerce was that there was some help available, with 46% indicating that they relied on help from outside the business to get them established. Approximately one quarter, 24%, said that the cost of this help was a consideration, with it being free or relatively cheap. A number of businesses indicated that they were going to adopt some

elements of e-commerce regardless of either the level of expertise within the company, or the cost of getting established as they saw it was an essential part of their business. Without it they would lose credibility in the eyes of their customers and their competitors.

One SME said that there were no specific triggers that pushed them to adopt e-commerce.

Knowledge of it [e-commerce] is organic to our company. We can begin a process in-house, but may have to rely on having the cosmetics added by an outside consultant (#5).

It can be expected that the owners/managers, having been pushed into adoption and assumed ownership of the adoption of the innovation, would be people who were slightly risk-taking in their attitude. They would be entrepreneurial – were they? This question is explored in the next section.

### **6.3 Decision makers as entrepreneurs and early adopters**

As the owners/managers have adopted e-commerce, can they be considered entrepreneurs? Have they evidenced this trait by introducing other innovations into the business?

The entrepreneur is the linchpin of innovation (Herbig et al. 1994: 38).

Are they – as Herbig states – entrepreneurs and are they early adopters of innovations?

#### **6.3.1 As entrepreneurs**

It is impossible to separate innovation from entrepreneurs. The two go hand in hand. Entrepreneurs innovate. They move economic resources of low productivity to areas of higher productivity and greater yield. They seek out opportunities and are prepared to take risks (Bidgoli 2003: 48-49; Drucker 1985: 40). This does not necessarily mean that the risk will be high – there are risks associated with every economic activity. The entrepreneur takes risks in the expectation that the enterprise will result in future success. Drucker (1985) describes a number of established firms, including IBM, Bell Labs and

3M, that have been operating for many decades while continuing to bring new products and services to the marketplace successfully.

The entrepreneur always searches for change, responds to it, and exploits it as an opportunity (Drucker 1985: 42).

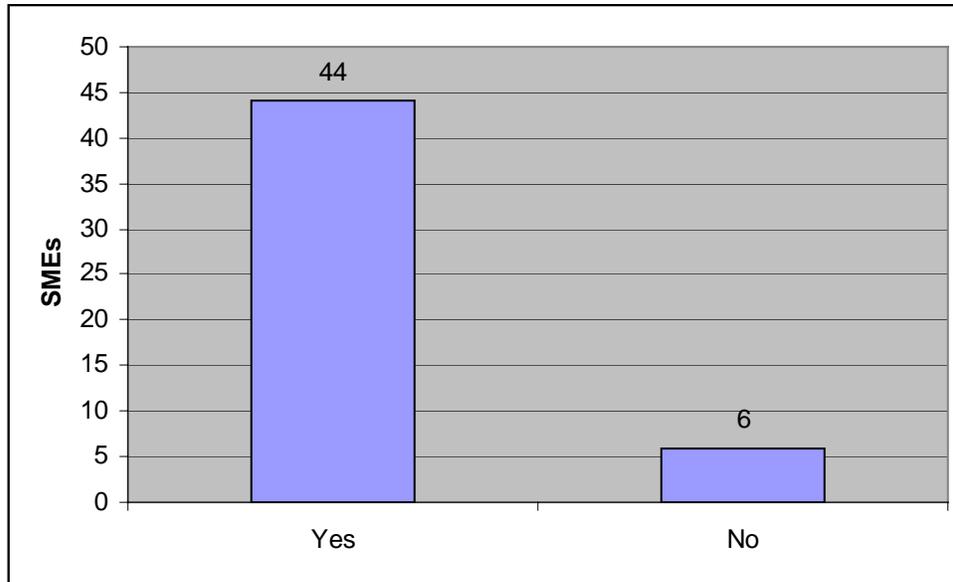
Often, of course, the risks are high. Acknowledging that high technology can be riskier than most, Drucker points out that innovations in this field can succeed if their introduction and diffusion are planned. Planning is what is needed, too, with the adoption of the innovation of e-commerce. In this study, it was anticipated that those SMEs that had successfully adopted e-commerce would have planned their entrance into the electronic marketplace by first completing a needs analysis with its associated risk assessment included (Bidgoli 2003: 42). It was surprising how few of the SMEs who were apparently 'successfully' engaging in some degree of e-commerce had completed such a needs analysis before adopting. A considerable number of them indicated that they would have done things differently had they planned more carefully beforehand. They anticipated that their level of success would thus have been increased. Yet, according to Herbig (1994: 37), planning is actually incompatible with an entrepreneurial society and innovation adoption.

There are other characteristics of the entrepreneur that assist him in his innovativeness. The entrepreneur must, for example, have sufficient capital to establish the introduction of the innovation, be capable of seeing the potential of the innovation for his business, be willing to take the required risks and to expend the required effort and time. (Brown 1981: 69).

Brown discusses the importance of what he calls 'management aggressiveness and innovativeness' as being a significant factor in a business' decision to adopt or not to adopt an innovation (1981: 156-157). If management displays innovativeness in other areas of business operation, then it will be more ready to adopt any innovation that can be used by the business. The business must be exposed to the innovation, evaluate it as a significant venture, and be capable of responding by adopting or adapting the service and successfully promoting it. This characteristic has no relation to the size of a firm; it relates to qualities of the individual manager or decision-maker within the company.

Because of the close link between an entrepreneur and the adoption of innovation, it was believed that if the owners/managers were entrepreneurs they would be more willing to adopt e-commerce.

**Fig. 6.3.1 Owners as entrepreneurs**



In this study, adopter SMEs proved highly innovative when it came to adopting other innovations into their business. Fig. 6.3.1 indicates the number of SMEs that considered themselves as entrepreneurs. A high 88% of the SMEs indicated that they believed they were entrepreneurs. In other words, the adopter SMEs have shown the aggressiveness and innovativeness necessary to adoption of an innovation. Only 12% felt they were more cautious, waiting to see others succeed before adopting innovations themselves.

A second point relating to the importance of management aggressiveness and innovativeness is that this characteristic may be more prevalent in SMEs than in large firms as SMEs (particularly medium sized enterprises) have a greater incentive to grow and improve their competitive position than large corporations (OECD 1997: 30-31; Parker 2000: 245-253; West 2001). Such receptivity to innovation may well offset the many advantages that vary directly with firm size, particularly for lower cost innovations such as e-commerce. E-commerce is readily available to firms regardless of their size.

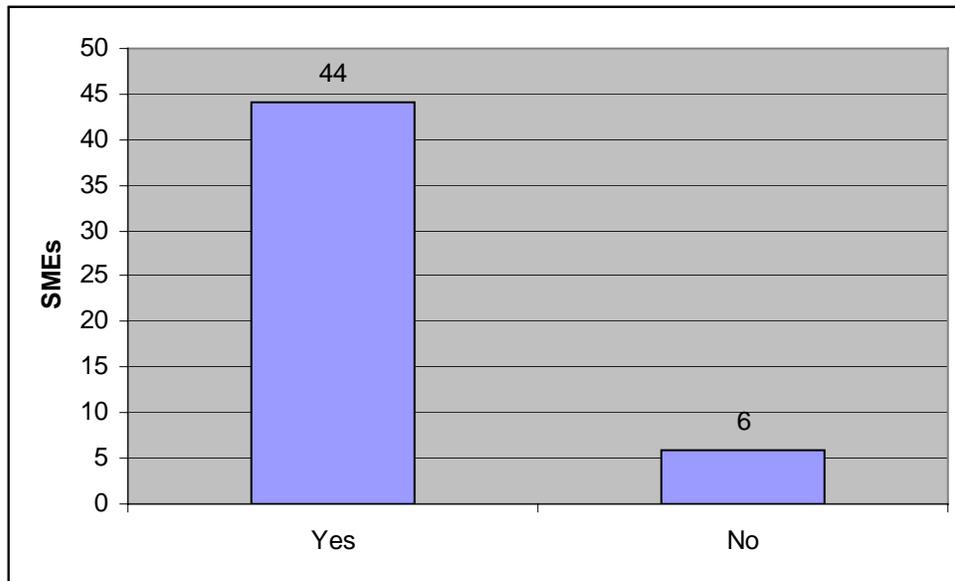
The cost of adoption is greatly variable, depending on a number of variables which can inflate the cost of adoption or decrease it if a firm is more or less ambitious in its requirements. As SMEs are more flexible they will have already used innovations in their business.

The next question explores whether SMEs in this section of the study had used other innovations in their business. If they had, this would substantiate their claim to being entrepreneurial in their approach to innovation.

### 6.3.2 As early adopters of any new service

There is also a perception that SMEs are more flexible and responsive to the demands of customers than larger corporations (Parker 2000: 239). Question 18 was included to assess the validity of this view. It was assumed that if SMEs had adopted e-commerce, then they were probably innovative in other areas of their business. Fig. 6.3.2 shows the results to this question.

*Fig. 6.3.2 SMEs that considered themselves early adopters*



Entrepreneurship, innovation and new ventures provide the fuel for the engine of the modern economy. ... Small firms produce two-and-a-half times as many innovations as large firms per employee. Small firms also bring innovation more quickly to the market. ... Entrepreneurs who head these new ventures seek opportunities and innovations and often provide the resources for them to succeed (Herbig et al. 1994: 37).

The majority of adopter SMEs in this study certainly supported this view. Most (88%) of those studied considered themselves to be entrepreneurial in other areas of their business, while only 12% did not. Each of these 88% gave an instance of some innovation they had introduced into their business. These were not related to e-commerce, but to any aspect of their business. There were a number of 'firsts' among those studied. For example, a real estate firm (#2) was the first business of its type to go on to the internet in the region and is developing a 'talking window' for passers-by to listen to verbal descriptions of any property selected from the window display, while a liquor store (#15) was the first business in the ACT to install EFTPOS, trialling it with the State Bank. A medical centre (#16) was the first to implement many new ideas that made the surgery run more smoothly or more efficiently. For instance, it developed consent forms for minor operations – an idea that is now being copied by other practices. A fishing tackle business (#21) introduced a personal-computer (PC) -based accounting and stock control system that was one of the first in Australia for that industry as 'most owners of the other stores in the buying group are not computer literate'. One architect (#25) had been among the earliest adopters of new techniques – use of computers, Computer Assisted Design (CAD) and email – before many other architects.

Supporting Parker's assertion that 'small new businesses have been the main driving force for the economic growth of the 1980s, contributing virtually all the new jobs born during that decade' (2000: 245) another SME (#10) through adopting various innovations, had expanded from 'a one man band' to one that now employed 30 people. A cleaning contractor (#20) had expanded its workforce to 99 employees by introducing innovative ideas into its business strategy.

Some described themselves as people who would push boundaries (#13), or who were forward thinkers (#12). A number of others indicated that they were always looking for

anything new that could be introduced to improve efficiency and return to their business (#3, #6, #15, #16, #20, #24, #26, #31, #44, #46).

Several have introduced new means of presenting their stock or changing the layout of their business (#3, #20) or had broadened the range of products they sell (#19, #33) or joined networks that widened their range of contacts (#4, #22). All of these simple yet innovative ideas have improved their business and increased sales and profits.

Using a gantry to lift heavy truck tyres – a task that previously took three men – not only saved on labour costs but on worker's compensation from possible injuries (#18). A large cleaning contractor (#20) also introduced machinery to reduce the number of employees needed on a task. In this case they bought a machine that strips and cleans waxed floors in one hour what used to take one worker three hours.

For every \$1 we save in labour, we actually save about \$3 altogether when add-on costs are counted (#20).

Others introduced ideas that saved time (which indirectly saved money). A specialised business operating system which includes a wide range of services saves time for a financial accounting firm (#29).

Improved customer service was often the point of an innovation. A structured workplace and consumer-oriented computer system adopted by #30 encourages the company to look to the consumer rather than to the product. As a result, repeat sales have increased significantly. Improved customer service was also the focus of #36 who said:

I always go the extra yard compared with larger companies. If I can improve a service level, I will always initiate it (#36).

A community recreational centre:

We now print booklets of free tickets to be sold as fund raisers by community groups. This promotes our business, gives us a tax break, and raises our standing in the community as we are giving back to it (#31).

Other technological innovations were just as creative. For instance, #23 introduced 'ADSL search engine optimisation to bring our web site higher up in a client's search results'. An outdoor property management firm (#27) introduced online bookings and scheduling of jobs. An IT consulting firm (#32) has automated its payslips.

If I can see something that can be automated, I'll do it (#32).

A recreational facility (#35) uses its database of members as a target marketing tool by emailing them notice of special promotions. An IT consulting company that employs three staff (in addition to his partner and himself) describes themselves as totally virtual:

The whole business is innovative – we are a virtual company. We have no business premises – other than a home office – as we work in our clients' premises; all of our staff have only their own personal computers as we work on client's technology. We support both old and new technologies. We are so successful that an English company wanted to buy us, but all we had to sell was our expertise (#38).

An engineering consulting firm (#42) said all ten professional members of its staff (apart from the receptionist) use CAD. A specialised educational institution, claimed

With its niche market, the whole campus is innovative itself (#45).

A research consulting firm (#5) developed two significant robot type innovations that have been taken up by the Department of Defence.

Being innovative did not mean that a business necessarily adopted a new idea as soon as it wished. For example, #13 wanted to have a web site but felt

The cost of getting one was just too dear at first – web site producers were just ripping off people. By waiting six months, the price came down by a factor of five. It paid us to wait – even though we wanted one earlier. We always investigate a new idea properly to see if the product is right for us, and if it is the right time to do it (#13).

Of the 12% of SME operators in this study who considered themselves not to be entrepreneurs, it seemed as if they really did not see the need to develop new ideas in their business, yet, at the same time, they did adopt e-commerce. Some of their comments included:

I'm pretty cautious. I tend to wait and see what works with others before considering it myself (#9).

No, we are certainly not innovative. It has been the same old, same old, same old, for the last 25 years. Drafting does not change much (#39).

We are cautious, probably more prudent (#40 – an educational development company).

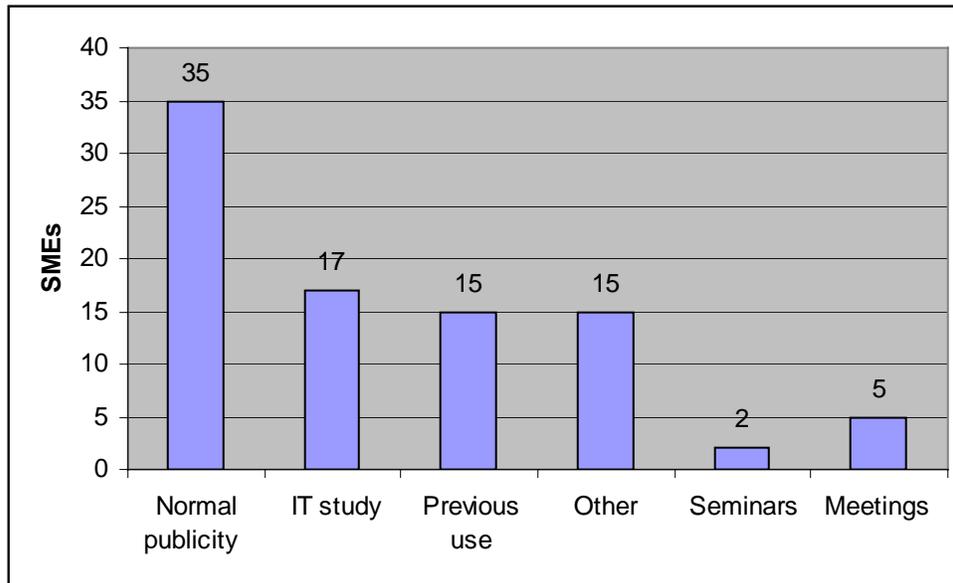
As financial planners we cannot afford to be risk takers (#49).

SME #37 felt they were constrained by government legislation. However, most of the SMEs in this section of the study – that is, those who had adopted e-commerce – could certainly be seen to be early adopters of innovations in their field. As early adopters, they are innovators. How do early adopters find out about the innovation they subsequently adopt? The next section discusses this.

## **6.4 Finding out about the potential of e-commerce**

How did these people find out about e-commerce and its potential for business? Are they opinion leaders or change agents? Do they belong to professional associations where they would have been exposed to new ideas or did they attend seminars? Most authors who have studied innovation (Brown 1981; Clayton 1997; Rogers 1995; Rogers and Schumaker 1971) highlight the importance of communication channels in the adoption process. This question was included to evaluate the effectiveness of communication channels used for dissemination of information about the innovation.

Fig. 6.4.1 graphically summarises the methods used. Figures total more than 50 as some SMEs gave more than one reason.

**Fig. 6.4.1 Means by which decision-makers found out about e-commerce**

By far the largest percentage – 70% – learned about e-commerce through normal publicity channels. ‘Normal publicity channels’ had not been included in the questionnaire initially, but when 3 interviewees nominated this as the main way in which they had found out about e-commerce, it was then included. When they were asked what they meant by ‘normal publicity channels’, most SMEs became vague. It seemed as if they had heard of e-commerce, but were not really sure how or where.

One third (34%) had completed some IT study where they had been exposed to e-commerce, so that it was an easy matter for them to transfer their knowledge and skills to their own business.

Another 30% had previously used some form of IT, so were open to the potential of e-commerce.

The Commonwealth Government, through the *Electronic Transactions Act 1999*, aimed directly at businesses that transact business with the government (Cho and Clark 2000), and provision of a vast range of information sources on its NOIE website, has been directly encouraging the adoption of e-commerce (and continues to do so). Governments at all levels and industry related-agencies such as AUSeNET had run information

seminars directly aimed at SMEs, and although these were generally well attended, only 2 adopter SMEs in this study indicated that this had been their primary source of information. What is wrong with the seminars that so few SMEs nominate them as their main source of information? Perhaps there needs to be a change of perspective in the way in which these seminars are marketed to make them more directly relevant to SMEs. Would they be better attended if they were more industry specific?

Existing channels of communication directly aimed at educating SMEs are not being used. Why not? This is possibly an area that could be the focus of further research. The effectiveness of existing communication channels needs to be reassessed.

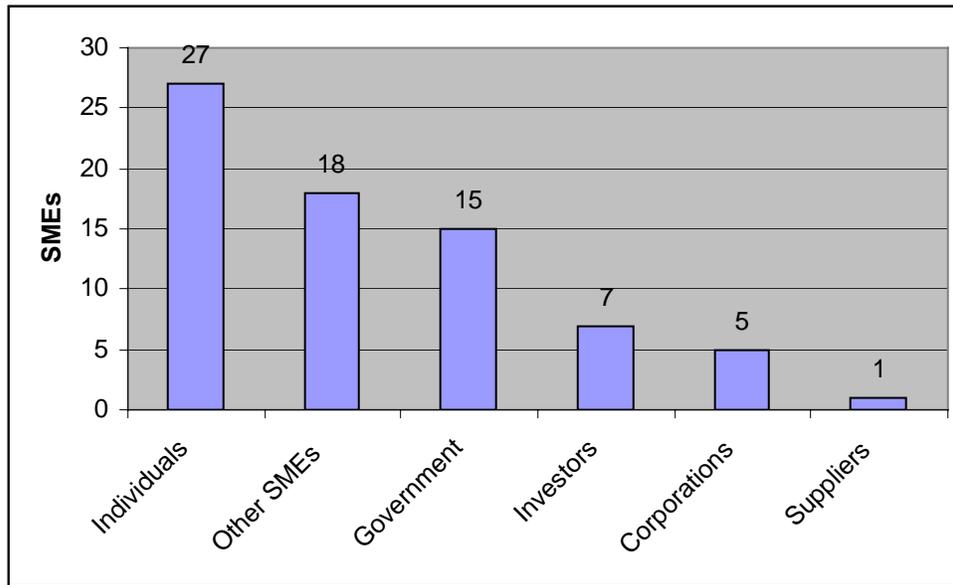
A further question – Question 20(b) – asked SMEs to indicate which segment made up the bulk of their clients, expecting that this may have revealed a source of information or ‘push’ that the SME did not consciously recognise. Perhaps SMEs adopt e-commerce when their clients are government departments. Or were they pushed into it by other clients?

#### **6.4.1 Push by external sources**

The Commonwealth and state Governments are giving preference to those business that deal with them electronically (Cho and Clark 2000; Department of Industry and Technology 2001). This is one way in which the government is encouraging SMEs to adopt e-commerce. Did this have a flow-on effect on SMEs’ adoption of e-commerce? Was it important to them that government departments were a significant part of their client base?

Fig. 6.4.2 illustrates the dispersion of client base of the SMEs in this study who had adopted e-commerce. SMEs sometimes nominated more than one category as their main client base, saying that they were fairly evenly spread between two or even three categories. Hence numbers total more than 50.

Fig. 6.4.2 Client base of SMEs



Most clients were individual or other SMEs. Thirty six per cent had other SMEs as their main clients, while 30% of clients were government departments. Although the government encourages SMEs to adopt e-commerce by virtue of its purchasing policy, not one SME in this study indicated that this had been a primary consideration in their adoption decision.

The category of investors was given by 14% of SMEs as their main client base. They saw this as different from 'individuals'. When questioned further on this, several pointed out that the investors were not necessarily individuals, but could be a married couple, a business, a corporation, or even a special fund as an investor.

Only 10% said that large corporations formed an important part of their client base.

There did not seem to be a push by external sources such as government to encourage SMEs to adopt e-commerce.

Although it had been anticipated that the majority of SMEs would have used their trade, industry or professional associations to find out the potential benefits for their industry, this had not been the case. Only 10% of SMEs gained their information from their

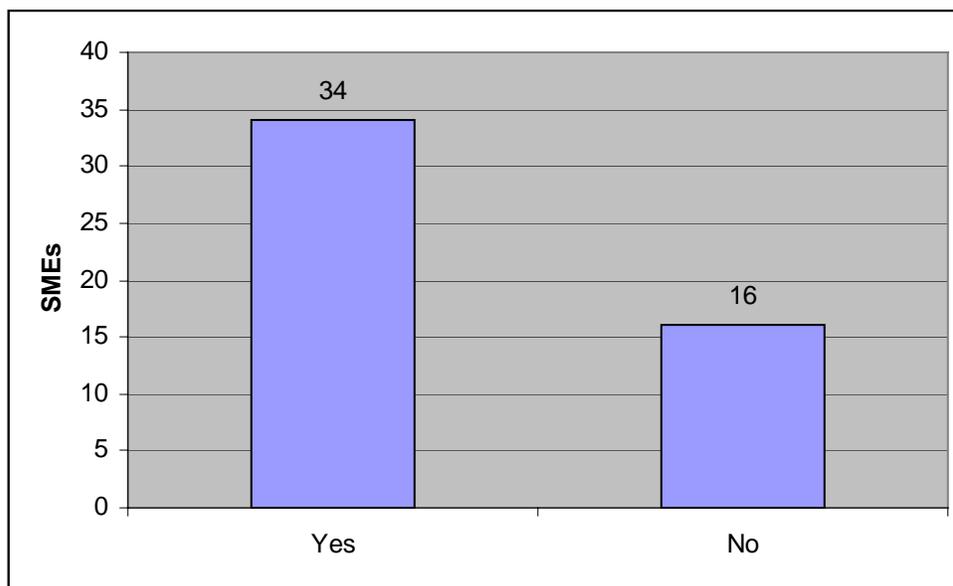
association. Perhaps they did not belong to their professional association. The next section looks at SME membership of such associations.

### 6.4.2 Membership of professional organisations

There has been much activity by government, trade, industry, and professional associations to educate and inform SMEs about the many benefits to be gained from adopting e-commerce (ACT Government 1995, 2003; AUSe.NET 2001; Brown 2002a; SETEL 2001b). According to innovation theory, communication channels are an important means by which potential adopters learn about innovations prior to their use. Thus it had been anticipated that trade, industry and professional associations would have provided a reliable means by which SMEs would have learned about the potential of e-commerce.

This question was included to find out if SMEs were members of such an association. It was anticipated that if they were, then such membership would have provided a valuable source of information to them about e-commerce. Fig. 6.4.2 graphically illustrates the membership situation.

*Fig. 6.4.3 Membership of professional associations*



Only about two thirds of adopter SMEs (68%) were members of a trade, industry or professional association. These associations included the various Chambers of Commerce and regional industry associations. Of those that did belong, there were some SMEs that held membership in a number of associations. This was particularly the case with professional SMEs. For example, #24, a podiatrist, belonged to five different associations, all of which were related to podiatry in some way, such as the Special Diabetic Society for Podiatrists. Others held membership as this was a legal requirement of being able to operate their business. Without it, they would not have been permitted to carry on trading.

A number of SMEs were critical of their trade, industry or professional association. Some felt they were too expensive without providing much in return for the high membership, while others had complaints about their associations, or felt that there were few benefits to be gained from being a member.

We are a member of two associated professional organisations [SME named them], but we cannot see what either of them do for us. Association One provides us with the list and award updates and is a small information source, but it is too dear and not worth it. We issue about 200 group certificates a year and we have to pay the 2% for long-service add-on, but no cleaner ever works for ten years to collect it, yet when this became law, Association One made no input to the legislation to prevent it. They are not at all pro-active, just accepting things after the fact, and then they let us know. We never know what is coming up for discussion in legislation so we can make a submission (#20).

Conversely, another (#18) felt that the \$1,000 per annum paid to the Chamber of Commerce and Industry was well worth it for the changes and upgrades to awards relating to staff and employment they sent out as they came due. It saved the SME time by not having to do the research themselves, and yet guaranteed that they were keeping within the parameters of the law. Other criticism of this same association was that, although the Chamber did a lot of good for business generally, it was too large and diverse, so that its focus did not suit everyone.

The other third (32%) did not belong to any such association. Many of these gave lack of time as the reason, or that they could not see any benefit to be gained from joining, while others indicated that they had belonged once, but had given up their membership for

various reasons such as dissatisfaction with the services provided for the cost. In other words there was no cost benefit to be gained. One perceptive SME said although he belonged to his industry association he liked to attend seminars different from the type they presented. He liked to hear ideas different from what he hears by going to his own professional seminars. This is how he learns of different ideas so that he could incorporate them into his business and gain the edge on his competitors. This strategy obviously worked for him as his business was very successful and had been for many years.

On the whole, however, it seemed that membership of trade, industry and professional associations was not a source of information for adopter SMEs of e-commerce.

Once SME decision-makers knew about e-commerce, how did they proceed?

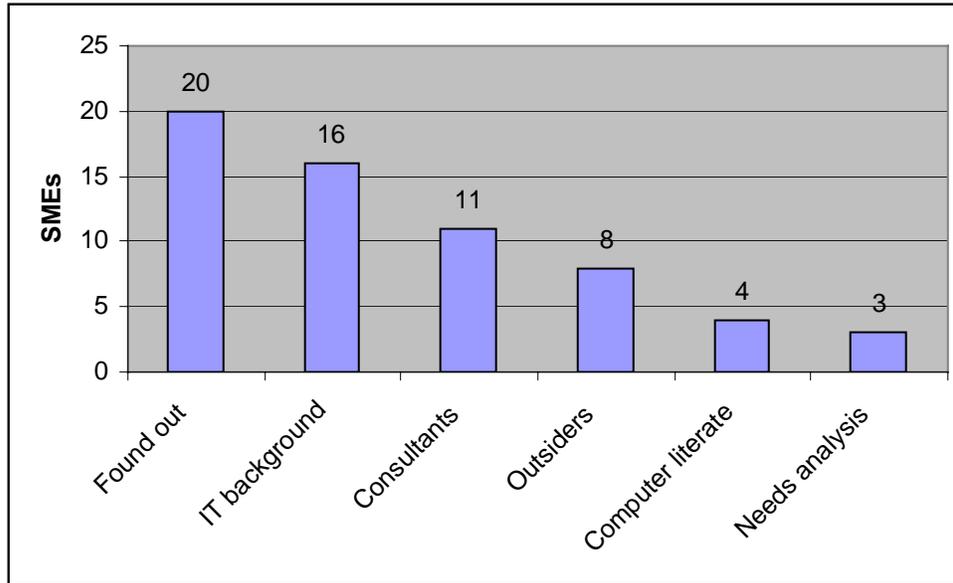
## **6.5 Implementing e-commerce**

Once they had made the decision to adopt, what were the first steps they took? What was the order of implementation? Did they adopt a complete package in the first instance, or did they adopt modules successively?

### ***6.5.1 First steps taken in the adoption process***

Responses to this question reflected the level of planning taken by adopter SMEs in their adoption of e-commerce. Fig. 6.5.1 shows the first steps taken by SMEs in their adoption process.

Fig. 6.5.1 First steps in adoption process



It is apparent that when the majority of adopting SMEs realised they needed to do ‘something’, the way to start was to find out what was involved (what has been called ‘found out’ in the figure above). They needed to **locate information**. They did this through a process of convenience, talking to whomever was readily available. Even though there is considerable government support available, only one SME used this as an information source. This makes one question the effectiveness of government support agencies – or their marketing strategies. Locating information needed had been the first step for 40% of SMEs in the adoption process. Two searched the internet to find what they needed, several talked to other similar companies to find out what they had done, while the remainder talked to other people. Both the local and Commonwealth Governments offer comprehensive sources of information, but only one SME specifically mentioned government support services – the ACT government source – which he had found of great assistance.

Having completed some **IT study** proved a significant starting point for about one third of the SMEs. This meant that they were able to undertake the technological development of the adoption process quite readily. Despite this, only 4 cases indicated that they had completed a full needs analysis. Although 32% of them said they had benefited from their

IT background or previous experience to be able to develop the e-commerce part of the business, they had not 'needed' to do a full needs analysis. It was surprising that so few SMEs had undertaken this. The strategy adopted by SME #1 was the ideal model. It is what is taught in educational institutions and recommended in management literature as the norm (Bidgoli 2003: 273-304; Drucker 1985: 284) but from this study seemed to be rarely put into practice in the work place. When the SME was asked why he had adopted this particular strategy, he said he had learned from long experience that it worked.

I planned the whole strategy. I analysed and planned it, modelled it, tested it, and finally built the site. I prepared full specifications. Then I had to engage in extensive training of personnel in various offices – I started with office staff where managers proved uninterested. I was fortunate as I had had long years of experience in the IT industry (#1).

It appeared that a number of those with an IT background knew *how* to do what was needed technologically, but often failed to consider the aims of the business as a whole. Often the person/s with the IT background was the IT department, a computer-literate staff member, a family member outside the business, a close friend, or even, in one instance, a university class (which *had* completed a full needs analysis). One result of this lack of strategic planning was that there was a high degree of dissatisfaction with the results from people in other areas of the business. As one person complained:

The IT staff saw it as a technology problem, not as a strategic information problem. Now we are in the process of reviewing the web site so as to meet the needs of the business. There should always be a closer relationship between the IT personnel and management to find out what is really needed (#37).

Realising that they were going to take the steps to adopt e-commerce moved 22% of the SMEs to employ outside **consultants**. Although this study did not follow up on the level of satisfaction and success of the different methods that were used to adopt e-commerce, there was a high level of dissatisfaction expressed by those who used outside consultants. Not all of the consultants did a needs analysis to see what were the requirements of the business. SMEs also found themselves locked into costly contracts with consultants as they were unable to maintain the sites themselves. There was a suggestion that the consultants deliberately used techniques that made it difficult if not impossible for the SMEs to take over the on-going maintenance.

Approaches by **people outside the business** had been the prod needed by another 16% to adopt e-commerce. Although a high number of adopter SMEs in Question 9 noted that their bank had been a trigger for them to expand their adoption of e-commerce into the area of online financial operations, only 3 cases in answer to this question said that their bank was responsible for getting them started. The bank had provided the full set up and support needed – which is different from acting as a trigger to adopt. Customers and friends had helped provide the information (and support) needed to get started in 10% of cases.

Another 16% believed they could adopt merely by being **computer literate**. If they knew how to use a computer, then they could implement e-commerce. Three adopters were very proud that they had taught themselves – one by purchasing a weekly periodical – so that they could implement what they saw was needed, while another went to the Canberra Institute of Technology (CIT) to learn HTML (HyperText Mark-up Language) so he could build a web site for his business. In other words these SMEs saw e-commerce as a technology issue, and not as a business strategy issue.

A random follow-up check a year later of 10 of the adopters (that is, 20%) to find out if on-going success of the business indicated that all of them were still using some aspects of e-commerce. Although there had been some initial dis-satisfaction with some of the original work, most were in the process of reviewing what had been done either with a view of improving the initial work, or of including enhancements that the company now felt it could accommodate.

Having started the process of adoption, what was the order of implementation?

### **6.5.2 Order of implementation**

One principle underlying the theory of innovation diffusion is that innovations succeed more readily if they are continuous – that is, if they can be adopted in stages (Brown 1981). Single elements of it can be adopted to provide time for learning to occur before more complicated elements are adopted (Brown 1981: 176-186; Clayton 1997: 12). Carr, of Telstra, at the E-commerce Forum for SMEs in 2002 claimed that:

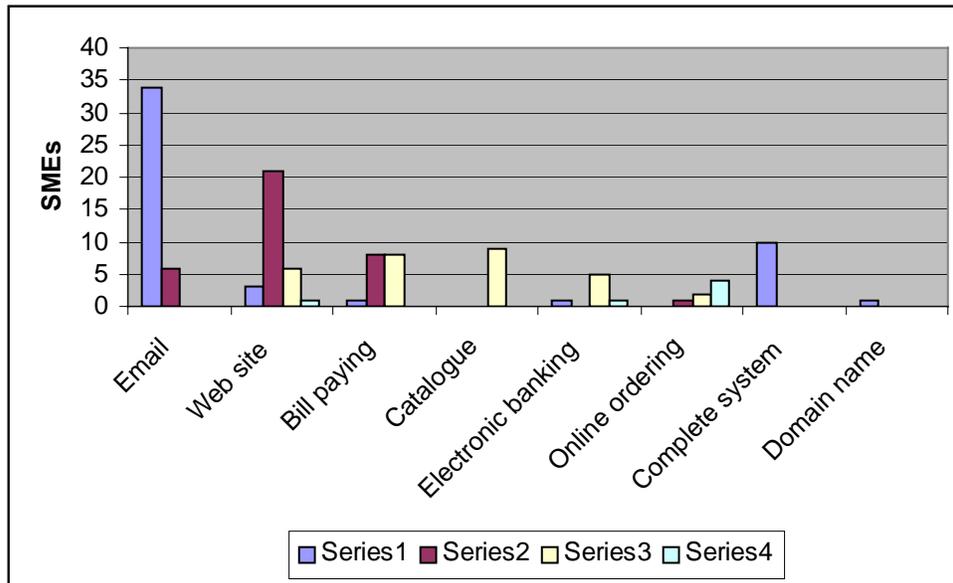
E-commerce can be seen as a five-step process for SMEs:

1. Get on-line and get email: A lot of e-commerce can be done with email. You can send forms and invoices. You can cut and paste to avoid re-typing orders. Only 70% of SME are online and have email. One strategy to increase SME e-commerce is to increase penetration level to 100%. This will reduce dependence on fax. If a SME can cope with step one then he is ready to move to another level in the process.
2. Get internet banking: This enables more to be done than at step 1. This step starts cash transfers without the need for cheques. Banks will enjoy the reduced dependence on written cheques which cost banks \$18 each to process.
3. Get a web site: Initially to advertise your phone number and email address. More sophisticated uses can come later.
4. Get an interactive dynamic e-commerce system integrated with your business systems (major focus of the E-commerce Forum) but steps 1 to 3 are e-commerce as well.
5. Get your voice and data integrated: Adding voice to your e-commerce system is the final step. Talk to the right people easily and quickly.

E-commerce is a continuum: SMEs can start at step one, get comfortable with that step, move to the next step when ready, or stop at a stage they feel comfortable with. They can also move quickly through the steps if they so desire. This approach will be easier to sell to SMEs than offering them a Step 4 solution on day one (Carr 2002).

This question was included to see if SMEs in this study had followed Carr's advice and adopted e-commerce in stages.

Fig. 6.5.2 Order of adoption of various processes



The 'Series' in Fig. 6.5.2 above indicates the order of choice of adoption of the various elements. Thus Series 1 means that this was the first element adopted, while Series 2 refers to the second element adopted.

As can be seen from Fig. 6.5.2 above, the majority of SMEs in this section of the study did adopt e-commerce incrementally. The majority – 68% – began with **email** before moving on to other processes. Many of them expressed the importance of email to the continued successful operation of their businesses, with several saying they did not know how they managed before they got it. Only 12% implemented email second. To these figures (and others below) must be added the figures for those who installed a complete system at once (another 20%).

Only 20% opted for a **complete system** in the first place, and, for the most part, these were those companies that employed consultants to set up the system for them. Two had purchased complete systems that had been written specifically for their type of business. A number of those that had purchased a complete system said they were now in the process of upgrading or revising their procedures and web sites. They are customising the products to better suit their needs, and to include features that they now needed that had not been included or had not been available initially.

Although they were not asked about it, other SMEs indicated that they saw continued upgrading as essential.

We have now out-sourced further developments as it is proving more cost effective – online catalogue, shopping cart, electronic ordering and payment (#37).

Development of a **web site** was the second process to be implemented after email. Only 3 SMEs said that the web site preceded email, but for 42% the web site immediately followed email.

**Electronic bill paying** was implemented by 16% after email, while another 16% made it the third process to be implemented. Several SMEs lamented that many of their suppliers would not accept electronic bill paying, saying this restricted their business, and cost them lots of time unnecessarily. One must wonder why suppliers are so reluctant to adopt this aspect of e-commerce when their clients obviously want it.

**Online catalogues** show-casing products and/or services offered by the SMEs were third in the order of implementation by 18%. For most SMEs these were all the features that they adopted, with only four SMEs offering online shopping carts in combination with the online catalogues.

**Electronic banking** was the first process to be implemented by just one SME, but another 10% made it their third priority with another one making it their fourth.

As banks have enhanced their services so we have used them more and more. As they have increased the range of services they offer, so it saves us more and more time. For instance, it used to take us hours just to make a telegraphic transfer of funds overseas, but now we can do it electronically in minutes. Banks have made it a convenient means of doing our business, keeping people within the office – it saves us a lot of time (#5).

**Electronic ordering** was the second process to be implemented by one SME, third by 2 and fourth by 4 SMEs.

Note that just one SME began with **registration of a domain name**. He was advised by a friend who lectured in IT at one of the local universities, and although he did not know enough to implement the process himself (he later used an IT-literate family member), he took the unusual step of registering the domain name that gave him a head start on the international scene when he was ready to move online.

I registered the domain name first - just .com without the au – about three years before I was ready to use it. Search engines overseas drop off the ‘au’ for most searches. If you want to sell overseas then this is imperative. I wanted to tap into the international market. It is also cheaper to register overseas by about a factor of 5. We aimed for the world (#15).

A number indicated that they began with up-grading of internal procedures which led them to gravitate towards the adoption of external features of e-commerce. Several named the effect Y2K had had on their internal procedures, indicating that they needed to upgrade computer systems which could support features such as internet access that facilitated e-commerce. BAS was another such prompt. Other comments included:

We scoped our requirements, completed a needs analysis phase first, and then a cost benefit analysis to look at return on investment before anything was developed. (#49).

Telstra approached us to get ADSL – they were prompted by our heavy use of email (#12).

It appeared that e-commerce fitted in comfortably with the attribute of continuity. It was, for the most part, adopted in stages. As single elements could be adopted to permit time for learning and preparation for the next stage, the adoption should be successful. The adoption of email, the simplest of the processes, enabled users to become comfortable with using it before moving on to the adoption of more complicated elements. Further research could be linked to the previous question to find out if having an IT background linked to the continuous adoption proved a successful model for SMEs.

This section showed the order of adoption of electronic commerce. The next indicates the whole range of e-commerce being used in the business.

## **6.6 Using e-commerce**

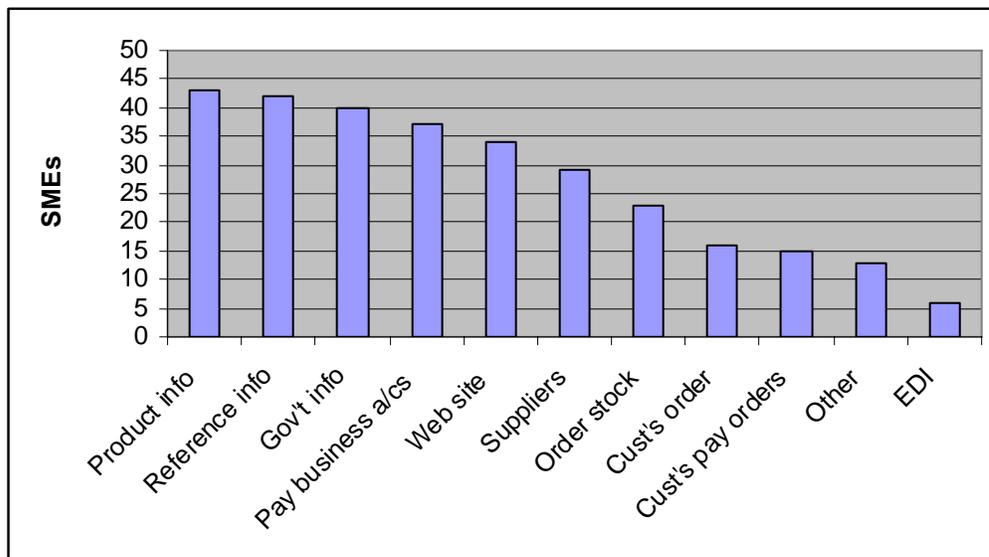
Having adopted, what elements of e-commerce were they using in their business? Have they automated any of these elements? If they had a web site, how did they use it for the business, and how did they promote it?

### 6.6.1 What elements of e-commerce do you use?

The first question was designed to assess first if an SME were engaged in e-commerce, and then to discover the extent of e-commerce adopted by that SME. Accordingly, SMEs were asked to indicate in which of the e-commerce activities they were engaged. The extent of engagement in the various elements of e-commerce is discussed in the following sections of this analysis, which also demonstrates the variety of activities undertaken by businesses in the sample.

Fig. 6.6.1 summarises SMEs' use of the various elements of e-commerce by the adopter SMEs.

**Fig. 6.6.1 Summary of e-commerce activities adopted**



#### 1. Communicate via email

The 2002 Yellow Pages *E-Business Report – The Online Experience of Small and Medium Enterprises* reported that:

Email continued to represent the highest level of internet usage and the most essential application by SMEs (75 % of all businesses),

while Jacobs of the ABS reported that over one half (52%) of *all* ACT business reported using electronic mail, which is much higher than the national level of 37% (2002). Of the adopters in this sample, 100% of SMEs used email – a result much higher than in either of those two reports, but, of course, all SMEs in this part of the study were users of e-commerce, so could reasonably be expected to be users of email. Almost without exception, they indicated that they found it essential to their business operations. Comments by interviewees indicated that they saw it as *integral* to their business. One interviewee put it this way:

Even if a business used no other form of e-commerce, they **MUST** use email. It is an absolutely essential to the success of any business (#23).

An entertainment agent (#22) said that without email his business would disappear. Email enabled him to send quotes immediately and to include details of the artists he handled as digital attachments. Email meant that he could compete Australia-wide whereas prior to its introduction he had been severely limited and could not increase his business as he has now done. Whereas once he was limited to Canberra and to a few Sydney-based events, now he was able to compete with other agents across the whole of the country.

Those businesses that had contractors or employees who worked out of town said that email was a reliable means of keeping in touch (#1, #5, #9, #11, #14, #40, #46). SME #37 relied extensively on email to maintain contact with his staff in overseas countries. A training institution (#45) used email to keep in touch with staff when they travelled overseas on promotional tours.

A pharmacy used email as a means of communicating with all the other businesses in its chain to warn them of possible trouble such as ‘suspects who try to steal children’s hospital boxes or who try to buy large quantities of drugs’ (#50). Their biggest difficulty has been to train staff members in other shops of the need to take responsibility for the email, and not to see it ‘as someone else’s job’. Email was used also to do the weekly update of Pharmaceutical Benefits Scheme (PBS) prices and information (see Part 6.6.12 of this section). Only the central pharmacy needed to do the full primary update, and then a list of changes was sent to all others.

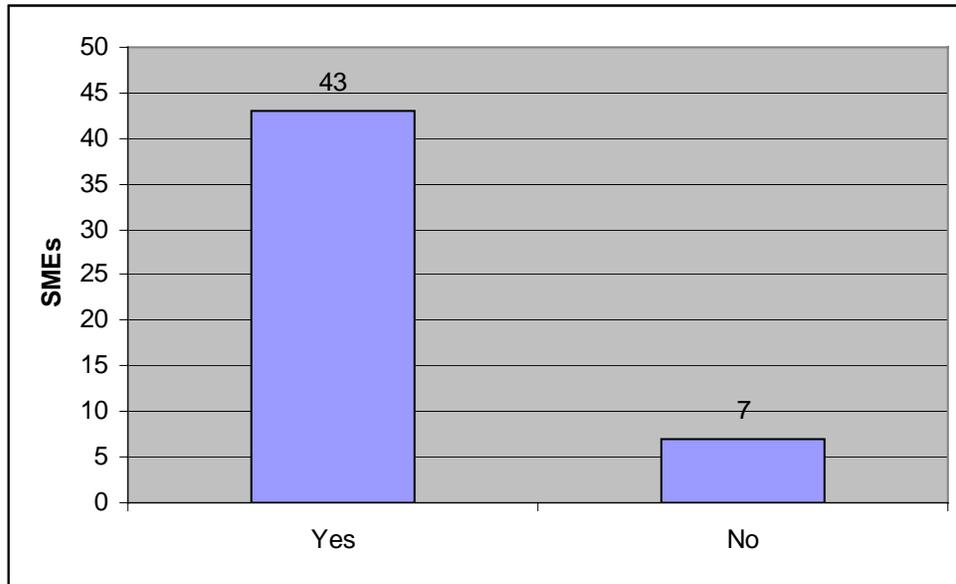
Others chose not to use email to communicate with staff, preferring to use mobile phones. This was true of those businesses which employed staff who worked away from offices 'in the field' (such as #6, #9, #14, #20, #27, #28, #31, #35, #45), but usually not interstate.

An automotive mechanical repair business (#6) had a web site and used email, but made very little use of either. It felt that neither suited its type of business, although it made quite extensive use of the internet to search for product and government information, and to order stock online.

Another (#18) chose to use snail mail instead of email when they had a lot of attachments to send. The speed of their connection was so low that email took too long to send. Yet, conversely, two architects (#25, #29) and a consulting engineer (#42) chose to use email particularly when they had sizeable attachments such as architectural drawings or design plans to send to clients. However, they also had broadband connections to their offices.

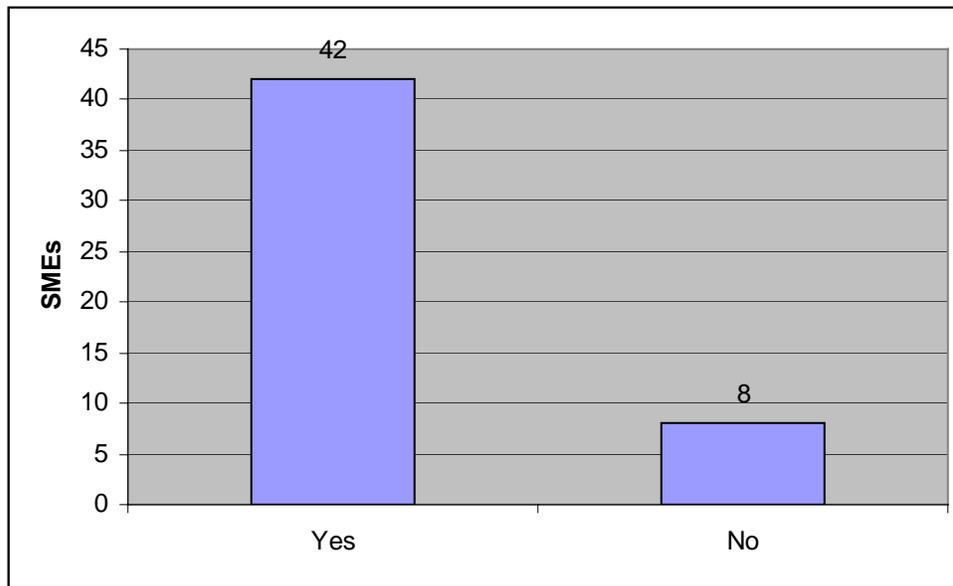
## ***2. SMEs searching online for product or service information***

In this section of this study, a high 86% of SMEs searched for product or service information online. Some said they wanted to keep up to date with new products in their field, while others were looking for 'good deals' to buy. This figure is comparable with findings of the 2002 *E-Business Report - The Online Experience of Small and Medium Enterprise* which found that 82% used the internet as a source of reference or research data and for information about products or services for purchase. Fig. 6.6.2 illustrates this situation. Poon and Swatman (1999a), in a longitudinal study over a 20 month period of a group of Australian SMEs, found that information gathering was one of the two most useful effects gained from being online. (The other was in time savings.) They did not differentiate as to the type of information SMEs sought.

**Fig. 6.6.2 SMEs searching online for product or service information**

### ***3. Obtain reference or research information***

Fig. 6.6.3 illustrates the number who used the internet to search for reference or research information. A high 84% of adopter SMEs used the internet to for this purpose. As already discussed, these SMEs were entrepreneurial in nature, and they were constantly on the look-out for other ways in which they could improve their business. Having internet access as part of their adoption of e-commerce made it possible for them to use that to augment their information gathering ability.

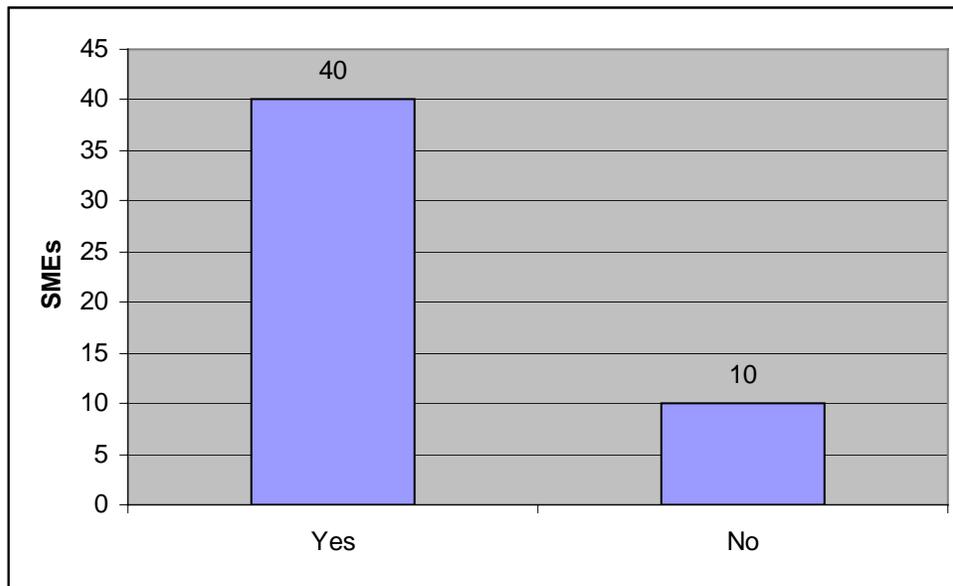
**Fig. 6.6.3 Obtain reference or research information**

#### ***4. Search for government information***

Brown (2002) points out that Government legislation and regulation is an integral part of operating a business.

In the short to medium term, efficiencies gained from addressing Government services via electronic means can provide a critical decision-making element towards the choice of an SME to adopt e-commerce (Brown 2002).

Assuming Brown is correct, it is not surprising that 80% of SMEs in this study search online for government information. See Fig. 6.6.4.

**Fig. 6.6.4 Search for government information**

The most popular government web sites were the ATO (Australian Taxation Office) and the SEC (SEcurities Commission). SMEs went to the ATO site to find tax information - especially regarding BAS - or to lodge BAS, and to check on changes to taxation rules for SMEs (#4, #6, #22, #32, #46). The SEC was used to check on other companies (#4, #22).

Other government sites were used to check on government regulations and changes relevant to specific aspects of a business (for example, thermometer regulations for fridges and probes by #7).

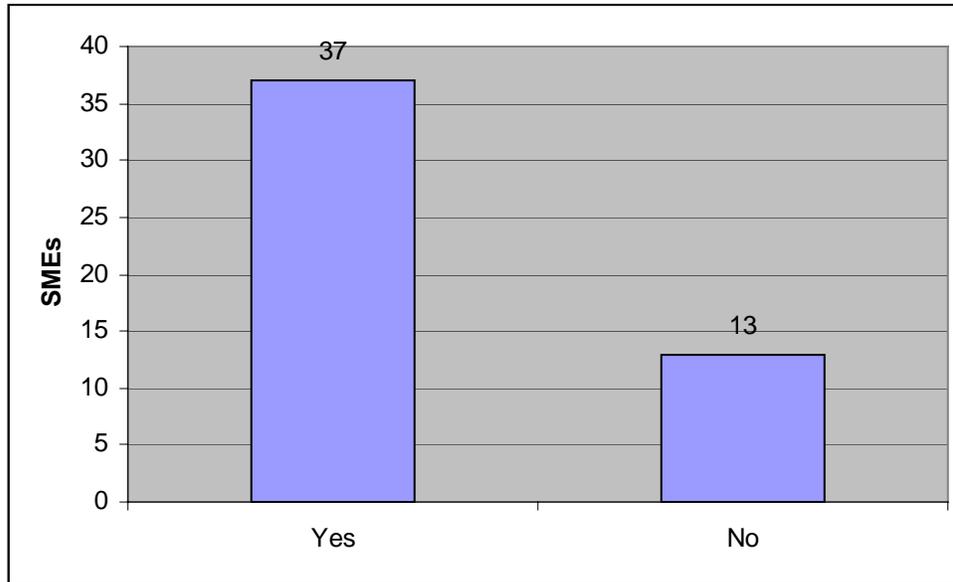
Several had links direct to government sites because of special relationships. For instance, a community leisure centre (#31) was linked to the ACT government site so that tourists could easily locate it. Another (#37) was linked with the CSIRO with whom it had made special arrangements to sell its products.

### **5. Pay business accounts (e.g. wages) online**

Cameron and Joyce found there was a high use of online banking when SMEs had a high use of IT (2001:220-224). Fig. 6.6.5 shows the number who used the internet to pay business accounts online. Although 74% of adopter SMEs paid business accounts online,

payments by this means were not as straight-forward as they seemed. Some companies required confirmation in another form – fax or email – of payments once they had been made – which rather defeated the advantage of using an online system (#22). When payments could be made by telephone transfer, this was preferred (#9, #22, #27, 39).

**Fig. 6.6.5 Pay business accounts (e.g. wages) online**



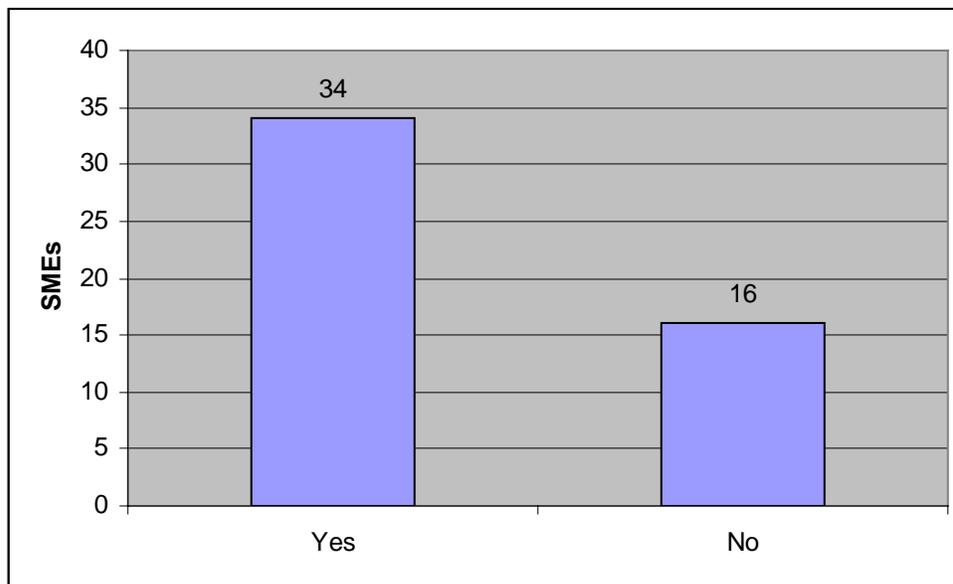
A restaurant (#41) used online facilities to check the status of their financial accounts, but not to pay business accounts. Several organisations indicated that they appreciated the convenience of online accounts as it enabled them to keep up-to-date with the status of their accounts, helping them to improve their cash flow situation (#5, #9, #13, #18, #30, #39).

### **6. Have a company web site**

According to the *2002 E-Business Report - The Online Experience of Small and Medium Enterprise*, the proportion of small businesses in Australia with a web site increased over the previous year from 31% to 34%, with a further 17% indicating an intention of getting one within the next twelve months. The proportion of medium businesses with a web site

rose from 67% to 71% in the same period, with a further 11% indicating they were expecting to get one within the next twelve months. ABS figures sometimes differ from other figures. In 2004, ABS indicated that only 23% of all business in Australia had a web site, while 33% in the ACT had one (ABS 2004b: 119). Of the adopters in this study, 68% of SMEs either had a web site or were in the process of redeveloping it, a number comparable with the medium businesses, but higher than for small businesses generally. See Fig. 6.6.6.

**Fig. 6.6.6 Having a company web site**



Almost one third of adopter SMEs (32%) did not use a web site at all. Of those without a web site, 12% of them were planning one in the near future or already had one under development (#19, #27, #29, #41). The remaining 20% who indicated they had no web site had no plans for one at all. They said that they did not need one, either relying on word-of-mouth for promotion of their business, or that their type of business did not suit this medium. Two SMEs (#3, #47), both real estate agents, relied on web sites provided by other agencies. Yet, both of them gained substantial benefits from the web sites. One said that

While AllHomes provides such a wonderful service that's free, I do not intend to worry about that side of the business (#2).

[AllHomes is a local web site that hosts free of charge advertisements of residential properties for real estate agents – although there has been a suggestion that now that they have captured the market, they are planning to charge.]

The third real estate agency (#2) relied heavily on its web site, promoting it extensively, even on the outside wall of its business, and gained a significant proportion of its business through its web site. The interviewee said that a large proportion of his property investors came from Sydney where residential property prices were extremely high. They studied the properties he had on his web site, and purchased from it, frequently without even viewing the property. They bought here because returns on their investments were higher than they would have been had they purchased in Sydney. He also offered a property management service that appeared to be much larger than either of the other real estate agents interviewed. Investors who purchased properties through him, would then engage his services to manage those properties. He claimed that his web site had been instrumental in increasing not only sales of properties, but in extending the number of property owners he serviced. At the time of interview he had over three hundred property owners on his books.

There were other businesses that, although they had web sites, did not see any real value in them. One, (#8), said they had a presence, but that was all it was - 'just a web presence'. It served no useful purpose for the business. Another (#6) did not even know the web site address even though the business had one. A consulting engineer (#42) relied on word-of-mouth for most of their business, and did not intend getting a web site in the foreseeable future.

Client resistance to technology was sometimes a factor that obviated against a SME using a web site.

Ninety per cent of our clients do not even own a computer, so we could not justify the cost of having a web site (#4).

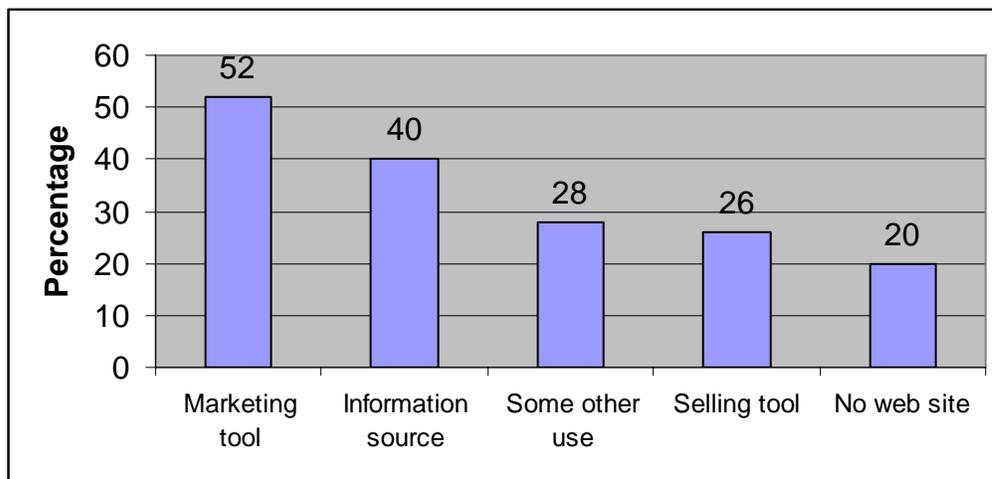
(Most of his clients were other small businesses, often family affairs such as a corner shop or milk bar.)

Information for the following discussion comes from Question 3, but is included here to keep relevant information about web sites together. (Question 3 asked 'How do you use

your web site – primarily as a selling tool, a source of information, or as a marketing tool?") This question was included to see if adopter SMEs had a web site, and if so, had they established it for a specific purpose.

Fig. 6.6.7 shows graphically how adopter SMEs used their web site. Percentages do not add up to 100 as most companies used their web site for more than one purpose. The most important use of their web site was as a means of marketing, with providing a source of information as the second most important use.

*Fig. 6.6.7 How adopter SMEs used their web site*



There was a wide disparity of uses of the company web site from those who had none to those businesses that depended on it as vitally important to the continued success of their business. There were a number of businesses which depended completely on their web presence for their continued business. These were those business that were heavily web-based, such as those offering IT type consultancies (#5, #23, #32, #38, #44) of one type or another. Yet, although its web site was important to an information designer and analyst, they did not use it for selling.

As we provide a service, we cannot sell online. Our web site promotes and markets our business (#44).

Of the 68% of SMEs that had a web site, most saw it as a significant part of their business, much of it international. Muecke, Chairman of the E-commerce and Telecommunications Advisory Group, in *Pathways to Electronic Commerce: Getting Australian Small Business Online*, pointed out that e-commerce is generating new trading opportunities for Australia's one million small businesses. Most of these businesses have never traded their products and services internationally, but now have the opportunity to do so. Micro, small and medium-sized business can now reach out through the internet and take advantage of global market opportunities (1999: 3). MacGregor and Vrazalic, in reporting a number of other studies, also noted an increasing focus on internationalisation by SMEs (2004:11). This advantage has been taken by a number of those in this study. For example, the business of #14 was completely internationally based, while #15, a wine merchant, had a substantial volume of overseas trade which arose solely from his web site presence. The volume of his overseas business exceeded that of the four shops he operated in the ACT. The company web site was responsible for a watch repairer receiving a high percentage of requests for watches and repairs from overseas (#43). He said that he was apparently one of the few in Australia who specialised in particular high quality watches of a special brand. Nor were there many such repairers world-wide. Thus his web site was important to his business.

Yet, at least two – a motor cycle shop selling top of the market models and a luxury car retailer – did not want to extend their business overseas.

It takes only one sale to go wrong and not get paid for it and we have made a major loss for the year (#13).

The other, (#30), had had experiences that had turned them away from seeking overseas sales. She had experienced considerable losses through the bank's inability or unwillingness to verify the security of credit card purchases. After checking with the bank that the credit cards were legitimate, and that she would be protected by the bank's guarantee against fraud, she had filled several valuable orders for purchases from Indonesia. When eventually the credit cards proved to be fraudulent, the bank took back the money from the business. The business lost many thousands of dollars. Understandably, the interviewee was very bitter about the bank's 'supposed guarantee

against fraud'. As she said, the guarantee did not protect the supplier, but merely the customer and the bank.

It appears that very few SMEs actually allocate the responsibility for getting the most from the web site as a tool for benefiting business to any particular person/s. Someone may be put in charge of the technological aspect to make sure that the technology works, but no one assumes responsible for seeing that the web site works for the business. Marshall and McKay found that:

A high percentage of businesses just assumed that benefits would be delivered, thought that a nice web site was all that was required, or were willing to leave it to chance (2001: 199).

This proved to be a point of contention for most SMEs in this section of the study once they had established their web site and found it did not always meet their expectations. They did not realize they had to market it.

Many web sites detract from their marketing goals because of poor use of web design. Design features, such as animated graphics, sound, video and flash movies may limit the audience only to those with the highest specification computer equipment when many customers have only basic equipment (Feinberg 2002; Manning 2000; Wen, 2001; Zhang 1999). Design features of web sites of SMEs in this section of the study was not included in the research, and could be followed up in a later study.

Further discussion of the promotion of web sites came from Question 16. (Question 16 asked 'How do you promote your website?') Accordingly, the promotion of web sites is included here before returning to a continuation of looking at other elements of e-commerce that SMEs in this section of the study used.

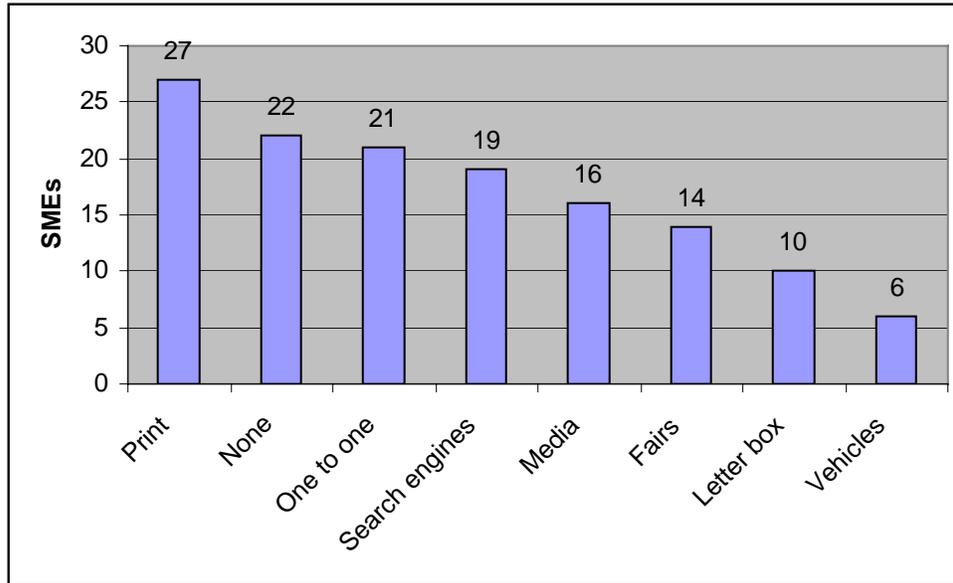
**Fig. 6.6.8 Promotion of company web site**

Fig. 6.6.8 illustrates how SMEs chose to promote their web site.

As already noted earlier in this section, a number of the adopter SMEs felt they needed a web presence just to be seen. It was surprising, therefore, that of the 68% that had a web site, so few chose to promote it widely. While 22% had no web site, and thus did no promotion, another 22%, with a web site, did not promote their web site at all! They merely had one. One person interviewed, a part owner of the business (#6), could not even give the web site address. Yet, it was the means of enabling the company to provide potential clients with a valuable entrée to the business.

Just over half (54%) elected to put their web site address on all of their printed material such as invoices and letterheads. One can wonder why the remainder expended the cost of developing one if they do not include it on even the most basic business tools.

After print, the most common means of promoting the web site was on a one-to-one basis – for 42%. This occurred in face-to-face meetings – often with sales representatives – or with individual clients, often on the telephone.

Although most of the SMEs used search engines when they were looking on the internet for information, in comparison very few of them (38%) realised they could register their

own business with search engines to help potential customers find them. They knew how much information was on the internet about any particular topic, but did not realise that there were techniques to assist their own business to be found. None was aware of the potential of meta-tags (index terms that are hidden on a web site but which are widely used by search engines).

Almost one third (32%) promoted their web site in the media. For most of them this was in newspaper advertisements, but several used the radio and television.

Just over one quarter (28%) went to trade and industry fairs where they promoted their business, and the web site as part of it. Only 6 (12%) put their web site address on their company vehicles (but more put their telephone number on them). One even used his company name as his car number plate – but not his web site.

Twenty per cent used letter box drops when they had special promotions. The URL (Unique Resource Locator or web site address) went on the advertising material. This was viewed differently from other printed material.

One SME (#2), who used his web site very successfully as a marketing and selling tool, even had his web address in very large lettering across the outside wall of his business where it attracts the eye of passers-by as he is sited on a corner.

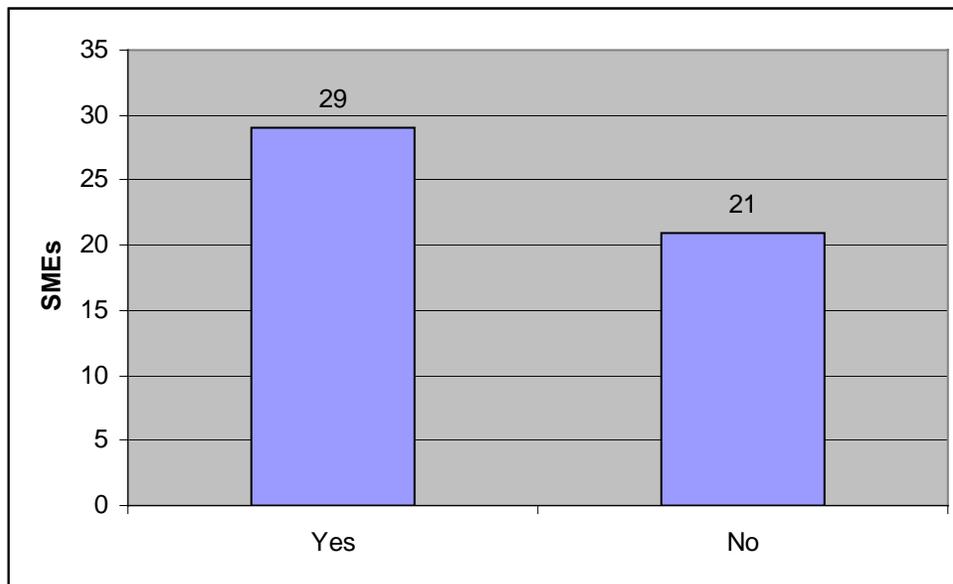
It is apparent that although most of the adopter SMEs realise there is an advantage in having a web presence, they are not aware of the need to promote it, supporting what Marshall and McKay (2001) had to say. They seem to have the mind-set of a traditional bricks-and-mortar business that if they exist, customers will find them. Nor do they realise that their web address can get lost in the plethora of other web addresses on the internet if they do not do something to help. They also need to be made aware of the advice of #15 who said that the domain name needs to reflect what the business *does*, not just what it is called. Search engines tend to search most successfully on generic terms that reflect what a business does, rather than specific names. If SMEs choose to use their company names, then they need to promote them widely, using all means possible, but particularly on all printed material that leaves the business. This is an area of education that appears to be over-looked in promotion of e-commerce to SMEs.

Discussion will now return to looking at other elements of e-commerce that SMEs use.

### **7. Communicate with suppliers online**

Fig. 6.6.9 shows the number of SMEs who chose to communicate with suppliers online. This does not mean that they ordered online, but merely that they chose to communicate with them – perhaps to clarify an order or a product.

**Fig. 6.6.9 Communicate with suppliers online**

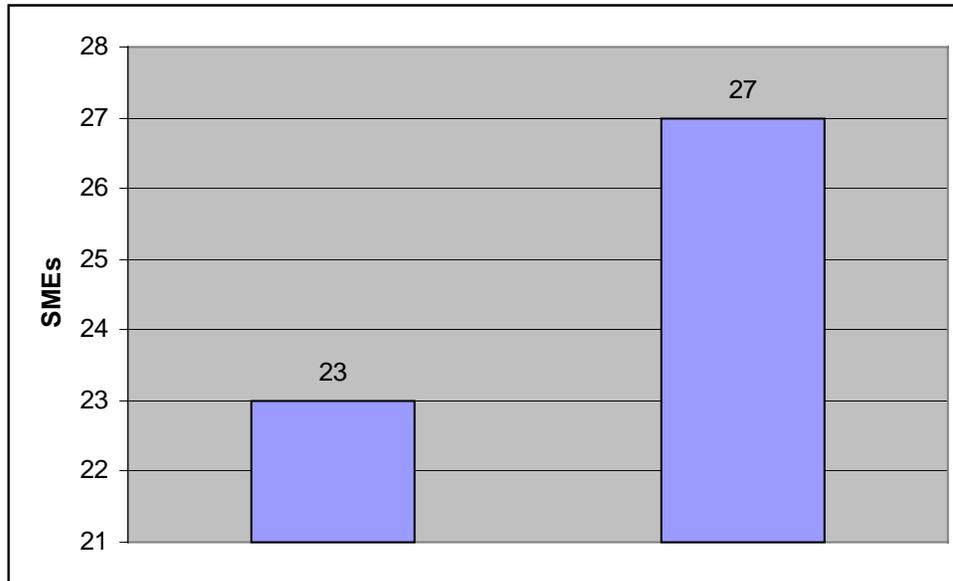


While 58% of adopters communicated online with suppliers, 42% did not. It appeared that a number of adopters contacted suppliers for reasons other than to place orders (see Part 8 of this question) such as clarification of description of parts or to follow up on status of orders. Those that did not communicate online with suppliers chose to use telephone or fax.

### 8. Order stock online

Fig. 6.6.10 shows the number who chose to order stock online. Although 46% of adopters order stock online, others preferred to order by telephone so they could respond to any queries about orders immediately (#16, #18, #29). They said they could clarify what they needed without further communication. The number of SMEs that order online (46%) is lower than the number that communicate with suppliers online (58%). (See Part 7 of this question.)

**Fig. 6.6.10 Order stock online**



These results are quite different from those reported by the ABS in 2004 that 28% of all Australian businesses placed orders online, with 40% of ACT businesses doing the same. This number, of course, includes all businesses, not just SMES, which explains the difference (ABS 2004b: 119).

Several mentioned the time element as being critical to their ordering process.

Our business runs on a just-in-time basis. Without the ability to communicate with suppliers and order stock online to be delivered, we could not operate competitively (#4).

SME #4, a wholesale food distributor, took orders by telephone, fax or email, and entered them directly into a special MS-DOS (MicroSoft – Disk Operating System) program, which enabled invoices to be printed progressively. Orders were in Sydney by 4.00 pm, collected by carrier by 8.00 pm, and delivered back in Canberra by midnight when packers started work. Deliveries began at 2.30 am, and were completed by 8.00 am when the first of the client businesses opened to the public. Time was critical in the successful operation of this particular business.

One of the pharmacies (#50) is trialling an online ordering system.

Several liked being able to order online after business hours as they were not time-dependent and could do it when it suited their personal life. Bhide says that:

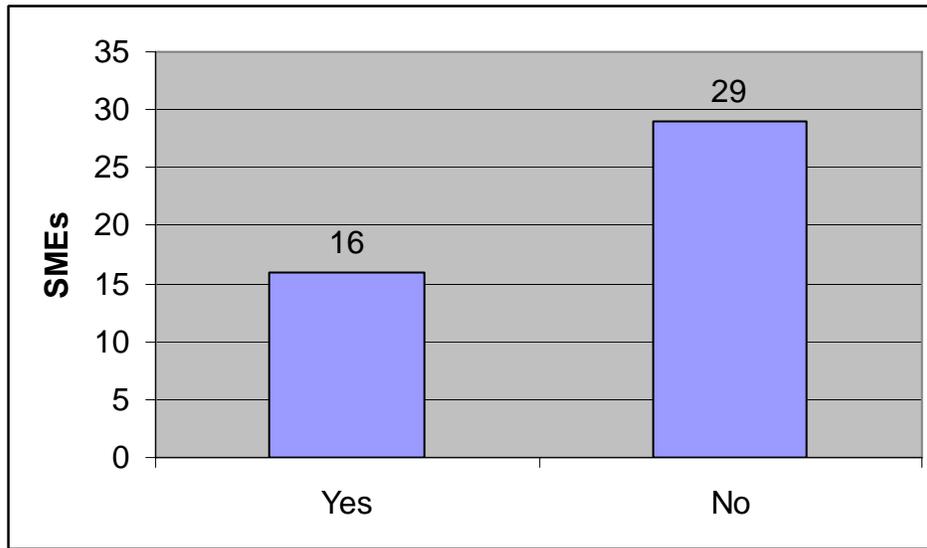
Before entrepreneurs can set goals for a business, they must articulate their personal goals. They may want, for instance, to attain a certain lifestyle, experiment with technology, or build an institution that can outlive them (Bhide 1999: 120).

SME #7 did this. He liked being able to order online as he could take his children to sport and do his stock ordering on his laptop computer while he waited for them.

A number of those who do not order online indicated that as they use local retailers (#6, #10, #27, #41, #44) online ordering is not needed. Telephone or fax orders are simpler and faster.

### ***9. Allow customers to order online***

Interestingly, although 46% of the SMEs in this study chose to order online themselves, they were less keen to provide the facilities to enable their customers to order online. According to the ABS 13% of Australian businesses accepted orders online, but in the ACT this number was 17%. In this study, this number was 16%. Fig. 6.6.11 shows that situation.

**Fig. 6.6.11 Allow customers to order online**

Online ordering and the tracking this facilitates is one area where businesses can make their operations more efficient, and thus more competitive. Automation is essential in a competitive marketplace.

Manual operations will keep companies so mired in simple production that they won't be able to provide added-value to customers (De Witt 2002: 40).

Despite this, only 32% of adopters allow customers to order online. The most common reason given was that it did not suit their type of business or product. Several expressed it as 'we sell a service not a product'.

Online ordering is not appropriate for our type of business. You might think that as we sell only brake and clutch products, that they could be ordered online easily, but we sell only after we have checked with the customer on a number of matters such as his use of the product – the way he drives, on gravel or bitumen, fast or slow, long or short distances ... All this affects the particular product we would fit to his vehicle (#18).

Carr (2002) says that e-commerce will reduce dependence on fax, but this has not been the experience of adopters in this study. Several businesses complained about the need to complement an online order with a fax (#8, #10, #38). In order to be able to fill an order businesses need to have a printed copy, so these have to be printed off regardless.

Confirming online orders by fax seemed an unnecessary addition to the online process, with some organisations being rather pedantic in their requirements.

One organisation – ANU [the Australian National University] – sends us a fax to tell us that they are sending us an online order, they send the online order, and then they confirm the online order with another fax. They say they have to do this for their auditors (#8).

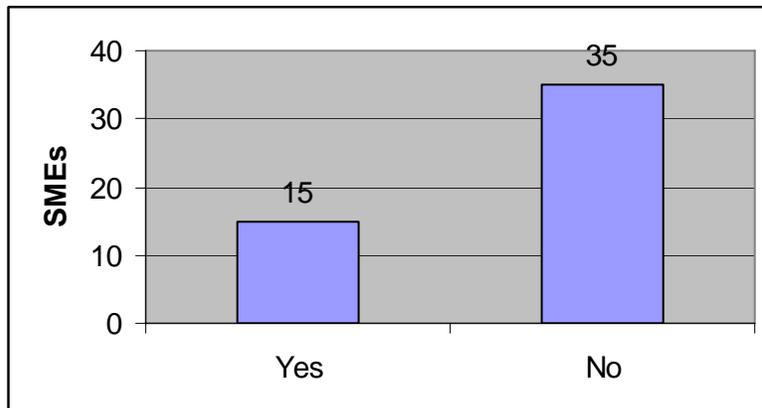
A number of companies require that we confirm orders sent electronically. It saves my time if I send a fax in the first place when I have to send a fax as well after sending it electronically, so I chose not to order electronically (#10).

Two businesses had developed or were in the process of developing an online feature whereby customers could check the status of their transactions with the SME (#27, #48). The first wanted customers to be able to check their accounts to pay online, whereas the second, a financial planner wanted their customers to be able to access their portfolio, and to use the opportunity to approach the SME to alter their investments. Both used secure sites that were protected by password access.

**10. Allow online payment of orders by customers**

As with online ordering, there also seemed to be a reluctance by adopters in this study to allow customers to pay accounts electronically, with only 30% permitting this. Fig. 6.6.12 graphically illustrates the situation.

**Fig. 6.6.12 Allow online payment of orders by customers**



One (#12) said that her manager believed that if customers could pay money into their account, then they could take it out. Despite her reassurance, he flatly refused to consider it. One real estate agent (#2) with three hundred landlords did not encourage tenants to engage in online banking 'as it is too difficult for us to keep control of when rent has been paid', even though he used it to pay his landlords. He also found that his tradesmen did not want to be paid direct to their bank accounts, but wanted to pick up cheques due to them. He felt this may have been a generational factor as most of them were older persons. Another real estate agent (#3) chose to pay rental owners or landlords manually, so as to keep better control over the process. However, compared with #2, this agent did not have many landlords.

One single-person micro-business (#17) said the monthly cost of being able to permit online payment of orders by customers was far too high when one has a low volume of transactions. There was no return on investment, so he chose not to engage in this aspect of e-commerce.

### ***11. Use EDI for any aspect of your business***

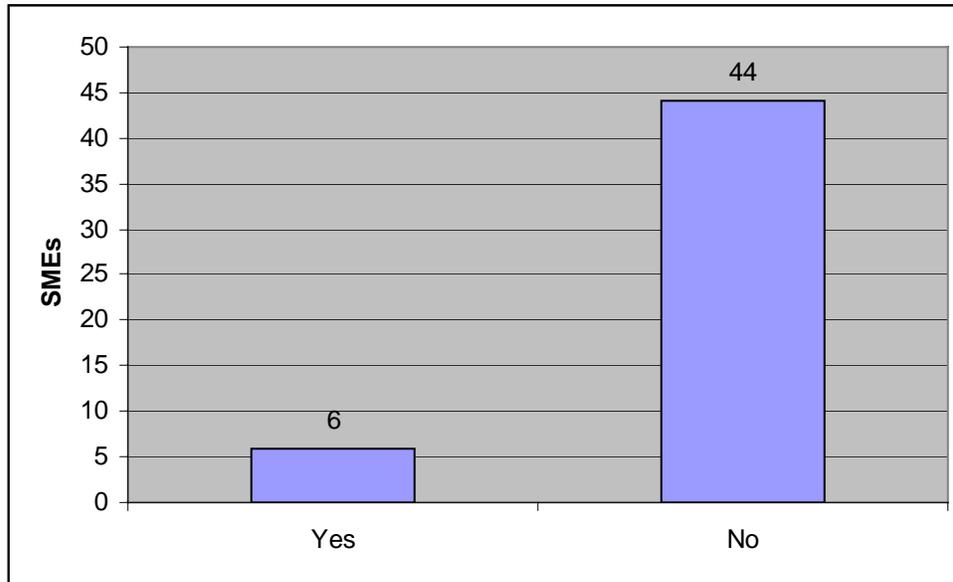
Many bigger companies continue to use EDI, which has long been an established method of data transfer of sensitive information for corporate commerce. Daniel et al. (2002: 261) found that prior use of EDI by firms was quite an important factor in their adoption of e-commerce beyond the stage of merely using the internet for communication and information, usually in B2B rather than in B2C commerce.

At least 20 years before B2B graced the covers of every major business publication, many companies were pioneering the earliest form of B2B: Electronic Data Interchange (EDI). EDI is a standard for electronically exchanging business documents, such as purchase orders and invoices, between trading partners. ...The adoption of these standards has paved the way for many businesses to electronically transact business with their trading partners and reap the financial rewards associated with eBusiness.

The security of dedicated lines of EDI seemed to be the primary reason for its use, yet it is also a deterrent to its expansion. Despite the fact that EDI has been around for 20+ years, traditional software vendors have fallen short of delivering a total solution for e-Business. On one hand, companies are seeking ways to lower the costs

of building and/or maintaining an EDI environment. ... On the other hand, companies are looking beyond their current needs, analysing additional opportunities that exist outside of the scope of EDI and seeking an extensible solution that will accommodate the shifting nature of e-Business in the future (SeeBeyond 2001: 3).

**Fig. 6.6.13 Use EDI**



Despite SeeBeyond's promotion of the advantages of EDI and the OECD's predictions of growth (1997: 24), only 12% of adopter SMEs reported that they used EDI. See Fig. 6.6.13. This figure compares favourably with ABS figures of 11% for the ACT and 8% nationally (Jacobs 2000: 118). Although only 12% of the SMEs in this study reported using EDI, a number of others indicated that they used electronic banking facilities, some of which depended on EDI to function, so perhaps this figure should have been higher than reported.

The ATO uses EDI, but calls it Electronic Commerce Interface or ECI (#49).

We use ECI to communicate with the ATO (#49).

The pharmacy chain (#50) uses EDI for all its accounting which is done electronically, including BAS, ATO and payment of wages. A leisure centre (#31) used EDI to send its

accounting information to its head office. A medical centre (#16) was preparing to use EDI to send information online to Medicare because of its security.

The luxury car dealer (#13) said that all suppliers and dealers of the same car type (such as Mercedes or Porsche) use EDI to show what stock they hold so everyone can see what is available anywhere in the country. This helps when a customer wants a particular colour or model, as dealers can exchange stock.

One major disadvantage of this is that suppliers are now becoming our competitors. Customers can purchase directly through them instead of going through a dealer - even though the customer cannot yet see what stock is available (#13).

For one SME (#38, an IT Consulting service) EDI formed the basis of its whole business:

We use the X400 protocol – we have customers who use it and we provide the framework for them to use it properly. Most other IT consultants have moved on to more up-to-date technology, leaving those businesses, which still use EDI without support. This forms the basis of our business. We help them move their EDI architecture from expensive dedicated lines to the internet (#33).

If all of these uses of structured data transmission were counted as EDI, then the total figures for EDI would have been considerably higher than the 12% given by SMEs themselves.

## 12. Anything else?

Fig. 6.6.14 Anything else?

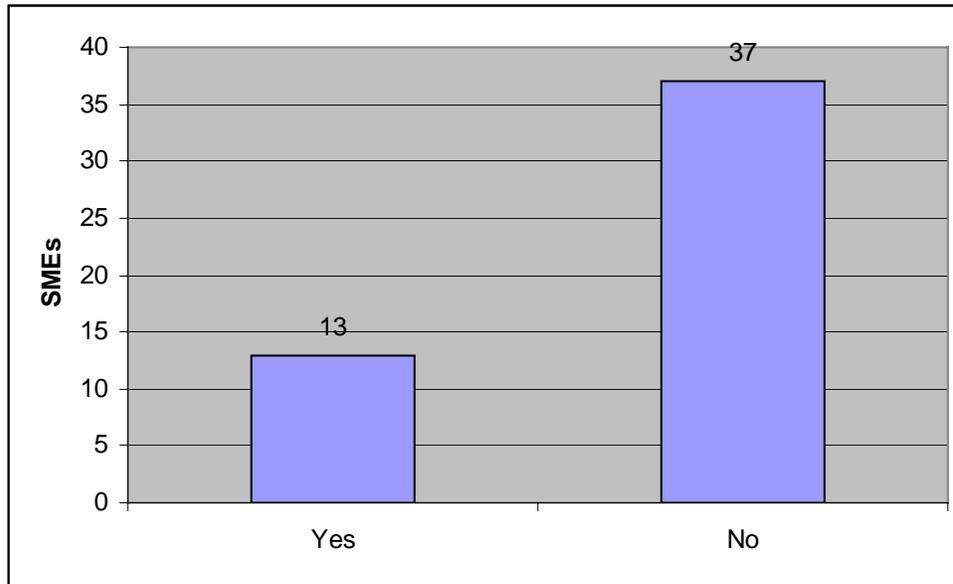


Fig. 6.6.14 shows that SMEs made other uses of features of e-commerce that were not included in the questionnaire.

Just on one quarter (26%) of adopter SMEs indicated that they used some other element of e-commerce. As well as or instead of using online bill paying or allowing customers to pay accounts online, a number of adopters added that they used electronic banking. (This was a weakness in the questionnaire design that this feature was not included as a separate element of e-commerce that SMEs may use. Other researchers may like to include it.) Jacobs reported that '45% of ACT businesses used electronic banking or EFTPOS, much higher than the national usage at 34%' (2000: 118). In this sample, 30% allow customers to pay online but 74% pay business accounts online, a figure much higher than both the national and the ACT average. Jacobs' figures include *all* ACT businesses, regardless of size, but exclude those operated 'entirely by sole proprietors, partners and unpaid family members' (2000: 117). As this sample included 5 SMEs that were operated by only one person who considered themselves entrepreneurs, this may introduce some imbalance into the comparisons.

Of other activities not covered above, adopter SMEs indicated that electronic lodgement of tax returns and electronic lodgement of BAS were important - as it was to those that used EDI (or ECI) to communicate with the ATO.

One of the more innovative and sophisticated uses of a web site was in the process of development by a company that offered recruitment services.

We are in the process of building an electronic shopping cart in which we will offer a resumé builder that companies can purchase to source candidates as potential employees. Companies will be able to pay online as part of the service. It will be similar to Amazon.com, but I don't know of any company offering it for employment (#49).

Pharmacies (#8, #50) said the internet proved essential for facilitating the updating of their stock control. Every Monday morning PBS figures need to be brought up-to-date to reflect price changes – which seem to occur almost weekly. This used to be done using a diskette ‘which often did not arrive on time, or if it did it was often unreadable’ (#8). With online access, they could now update automatically without problems.

A company specialising in the development of educational material (#40) developed and provided materials for students to study online. Such study materials were disseminated online. Similar activities were undertaken by an educational institution (#45) that offered both a certificate and a post-graduate certificate through online study.

A watch repairer (#43) used an online database linked to suppliers on which to store references to watch spare parts.

An information designer and analyst (#44) did online usability testing for Centrelink's forms as well as designing forms for other government departments online.

Updating of stock holdings and catalogues was simplified with e-commerce:

When suppliers send an update of their catalogue, it is easy to download it and make the upgrade adjustments automatically (#18).

After having described the elements of e-commerce they used, SMEs were then asked if they had automated any of the functions. This would indicate if they had extended their use of e-commerce.

### 6.6.2 Have you automated any of your functions – such as auto-responders to email?

This question was included in an attempt to find out the degree of automation adopted in e-commerce activities by adopter SMEs. It was believed that this would indicate their level of commitment to the process, and their level of understanding of the possibilities.

*Fig. 6.6.15 Automated any functions*

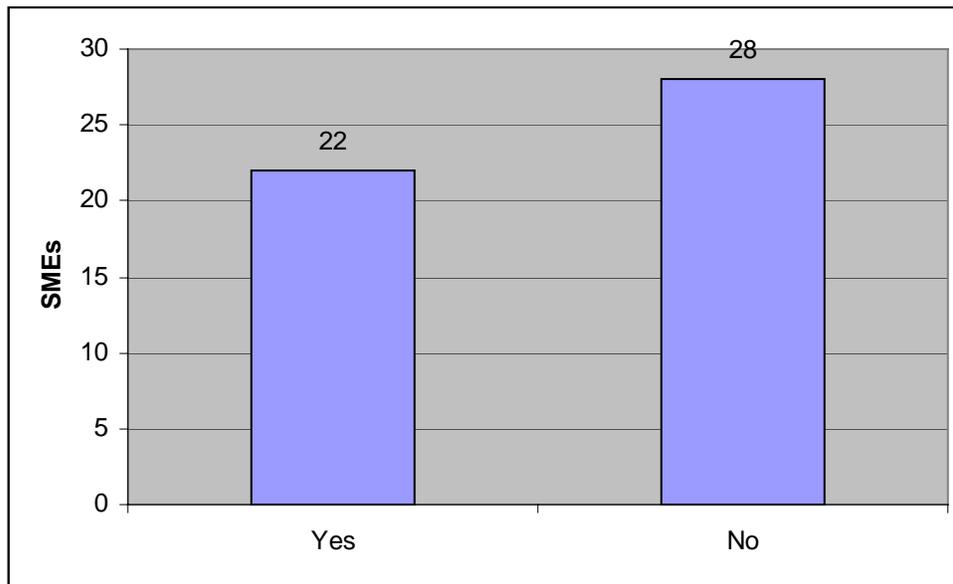


Fig. 6.6.15 shows the number of SMEs that had automated some functions. Close to half of the adopter respondents (44%) had automated some functions relating to electronic commerce activities. This included an interesting range of functions that led to time savings and increased business efficiencies. One had automated the generation of pay slips – an activity that had previously taken up to half a day, but now took only a few minutes.

Although 44% of SMEs indicated that they had automated some functions, there were others who said they had considered automating functions, but had not been able to do so, usually because they had not yet been able to locate suitable software. For example, #1 wanted to be able to mail-merge email so as to personalise messages. Several others

indicated they had thought of doing so, but had not had time to work through the necessary parameters.

Having seen what elements of e-commerce SMEs had adopted it is appropriate to consider the possible benefits they perceived could be achieved from adoption. These possible benefits are discussed in the following section.

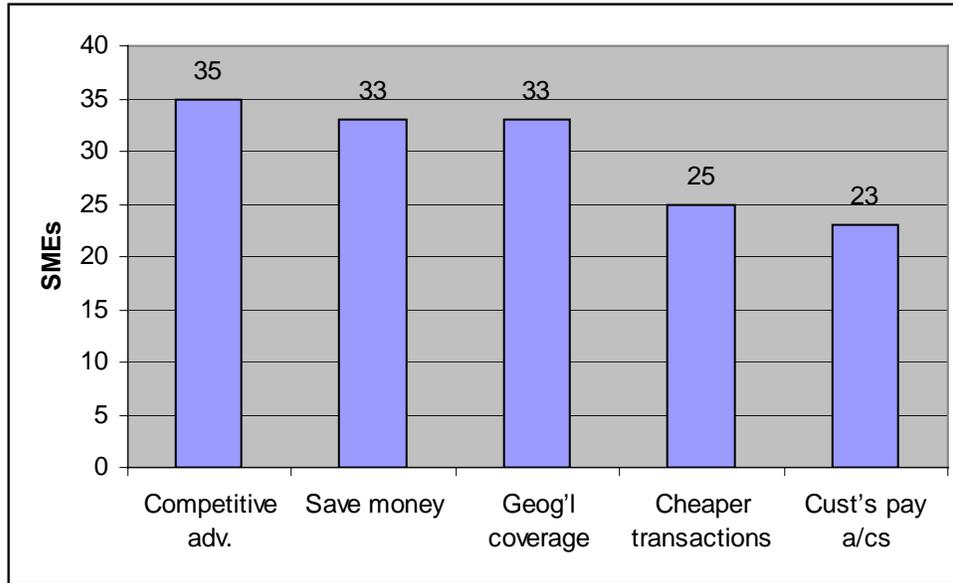
## **6.7 Anticipating and receiving competitive or economic benefits**

Different researchers have noted that SMEs perceive a range of different potential benefits to be derived from the adoption of e-commerce, but there is a great deal of overlap in the results, with perceived benefits being considerable. These are discussed in detail in Chapter Two in *Section 2.4.2 Perceived incentives to the adoption of e-commerce*. This part of the interview asked SMEs what they believed could be potential benefits to be gained from the adoption process, and then they were asked which ones they had already received. These are discussed separately.

### **6.7.1 Benefits that could possibly be achieved by your business**

Of the range of different potential benefits, the primary benefit appears to be that businesses believe they can gain a competitive or economic advantage by adopting e-commerce. In other words, there is a cost benefit to be achieved. E-commerce can significantly reduce costs in the areas of telecommunications, logistics, and finance, while it can open up a global marketplace. With a large number of potential benefits to accrue to a business if it adopts e-commerce, it is difficult to understand why SMEs have been somewhat slower or reluctant to adopt. Those SMEs that have already adopted do see the potential benefits. Fig. 6.7.1 through to Fig. 6.7.4 show the benefits the adopter SMEs believe could be achieved from the adoption process. Several benefits have been grouped in each graph so as to make them more readable.

Fig. 6.7.1 Possible benefits from e-commerce a-e



*a. It could offer a competitive advantage.*

That e-commerce could offer a competitive advantage has been a finding of many studies (Fariselli et al. 1999: 263-265; Ihlstrom and Nilsson 2001; MacGregor and Vrazalic 2004: 11; Poon and Swatman 1999a; Sathye and Beal 2001; Singh and Slegers 1998; Walczuch et al. 2000; Yellow Pages 1998). In this section of the study, this potential benefit proved to be the most important one, with 70% of adopters expecting e-commerce could offer them a competitive advantage. Indeed, a number of them expressed this as their prime reason for adopting e-commerce initially. Without engaging in e-commerce they would not remain competitive. A financial planner expressed it for all of them:

This was the greatest benefit. We had to do it to remain competitive. If we did not do it, we may as well have packed up our bags and left the scene (#48).

This seemed to be the primary reasoning behind their adoption of e-commerce. They wanted to remain ahead of their competitors and they did this in a variety of ways. For example, #1 gained a competitive advantage by supplying potential clients with an online financial enquiry form that could be sent to the firm's financial adviser to assess their financial ability to purchase without having first to provide all paper documentation that a bank would require. Clients were most appreciative of time this saved them.

Although they agreed that e-commerce could offer a competitive advantage, #45, an educational institution, felt that their best means of promotion came by word-of-mouth from other satisfied customers. These included past students who had obtained 'good jobs' and employers of their graduates.

***b. It could save the business money.***

Linked closely to the competitive advantage is the economic advantage. Although this could be an indirect saving, it proved to be an economic advantage if it saved the business money. The literature is rich with examples of how electronic business can save money for businesses, ranging from transactions costs (Gates with Hemingway 1999) infrastructure (Herman 2001: 48-49), procurement (Stanton 2001), to more general savings (Poon and Swatman 1998a; Pracy and Cooper 2000; Singh and Slegers 1998; Steinfield et al. 2002). Of the adopter SMEs in this study 66% had expected that e-commerce would save them money. Many understood that it would save them time – especially with the use of email instead of faxes or the written postal service – which means that it would be saving them money.

I now send out one email whereas previously I used to send out 21 faxes (#50).

The use of email proved especially welcome as a saving of time, and, hence, of money. It improved the speed of communication (compared with other written forms). Where SMEs had a large client base and communicated with them regularly they saved substantially on postage by using email. They also saved in communication costs when they have staff away from the office such as in the field or interstate or overseas. A financial planner (#48) said that not only did e-commerce save the firm in extensive postage costs, but it also saved money for the client, as clients were charged by the minute for time devoted to them. It was quicker to write and send an email than to have a snail mail written, folded, placed in an envelope, the envelope addressed, and then posted. Both gained financially from it. And this improved customer relations.

That it could save the business money proved to be the case in ways that were sometimes unexpected. Many of their savings were in time, and, in business, time is money.

Now no one has to walk around to the bank, stand in line waiting to be served. What used to waste hours every week now takes only minutes (#39).

A real estate agent saved time and money for both himself and for potential clients by directing them to view online photographs of properties for sale. If they liked what they saw, they could proceed, but if they did not like it, then no time was wasted by either party (#2). The same company made great business savings by using email instead of the postal service, with each email costing approximately twelve cents (their estimate), against 45 cents postage for each mailed letter (increased to 50 cents since the interview).

An increase in accuracy of order input meant a reduction in delivery errors that had to be corrected, thus effecting considerable savings in both time and in the number of wrong orders and deliveries that needed correcting (#4). A civil engineering firm found e-commerce was a money saver by keeping them up-to-date with industry information such as standards and products, and the needs of builders.

An import business, #11, and #12, an export business, both found that being able to have an online catalogue instead of a printed catalogue saved them enormously in preparation and printing as well as postage costs. Now they have to do the pricing only of products which are listed in a database, so changes at the source are immediately reflected in the online catalogue – also avoiding re-keying errors.

***c. It could expand the geographical coverage of my customer base.***

Two thirds (66%) of adopter SMEs expected that it could expand the geographical coverage of their customer base. Many of the 66% target the international market specifically, or in addition to their national market. This was quite telling for several. One found that his client base had now extended right across Australia (#13). One small real estate agent (#3) was surprised when he sold a property to someone in Singapore, and an events organiser (#22) received a contract from London.

***d. It could lower the cost of individual transactions.***

Half of the adopter SMEs (50%) gave this as a benefit. The cost of online banking in particular was noted as being much cheaper than personal banking, not only for the lowered cost of transactions, but for time saved from having to visit banks and stand in queues waiting to be served.

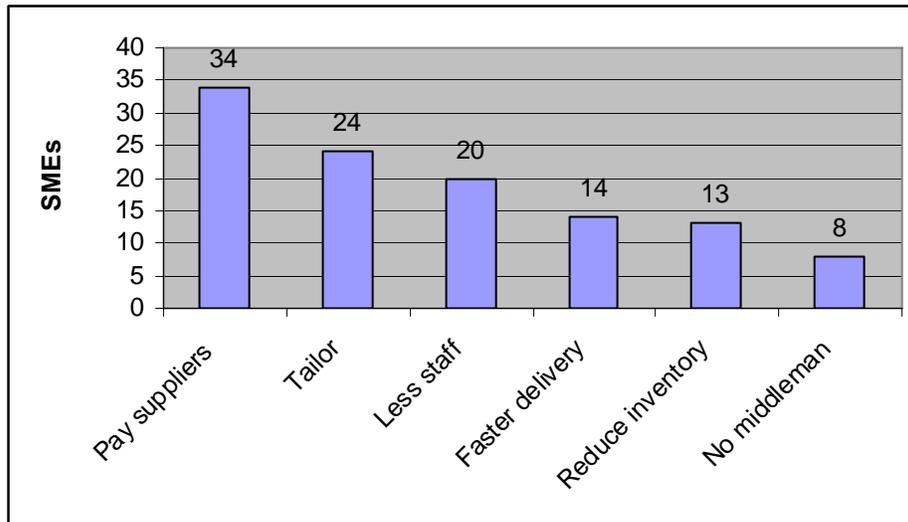
***e. It could be a more efficient way for my customers to pay accounts.***

Almost half (46%) agreed that it was a more efficient way for customers to pay accounts. However, one real estate agent that managed over 300 properties, actively discouraged his 'rentals' from paying electronically,

As it is more difficult for us to keep track of payments and non-payments. Our account enquiries would be more frequent, and the bank would charge us more (#2).

SME #5 said it improved their cash flow as their government customers paid more promptly now they could pay electronically. The only problem was they the SME did not know *when* they had been paid, so had the administrative overhead of regular checking up on payments. (Other SMEs that paid their suppliers electronically overcame this for their suppliers by confirming the payments by fax or email.)

Fig. 6.7.2 Possible benefits from e-commerce f- k



*f. It could be a more efficient way for me to pay invoices from suppliers.*

Two thirds (68%) of these SMEs now paid suppliers online. It was more convenient for them, saving them time and money. Others were anxious for their suppliers to make this possible. This was a case of the SMEs were ready, but their suppliers were not. This number would be higher if suppliers were more cooperative. Even though SMEs said they would be willing to fax suppliers to confirm that the money had been paid into their accounts, suppliers were still reluctant to accommodate them (#8, #18). Possibly the suppliers had similar reservations to the SMEs in this study who were reluctant to give their clients their bank details?

Yet, #9, who had a limited number of suppliers, preferred to pay his suppliers by cheque as it could be done by anyone on the staff without specialised training.

Banks were the subject of a number of complaints, being considered rather like big brother wielding a big stick:

It's not just that we can do it [pay invoices from suppliers electronically], but the banks practically force us to do it (#27).

***g. The company could tailor services to specific sections of its market.***

Almost half (48%) said they could now tailor their services to specific sections of their market. This targeted marketing made their efforts much more effective. Quite a number had previously targeted to a specific market, but found that their market segment had now expanded. Real estate agents found they were able to tailor specifically to rental, auction or general sales market. Online marketing made it possible for #17 to broaden his niche market all across Australia. His one-person business had expanded considerably as a result.

One interviewee felt it was ironic that her firm (a financial planning company) chose to use manual mail-out to target services to specific sections of the market, even though it would be more efficient to do it electronically. She intimated that the company realised that many of their clients are mature or older who still prefer to have a piece of paper when they are considering particular offers.

***h. It could reduce the number of staff needed as many processes (such as acknowledgment of orders) can be done automatically.***

In most cases of the 40% who saw this as a benefit, it did not reduce the number of staff, but increased what the same staff could accomplish, which was the same effect overall. A large number of adopter SMEs said that although they had not needed to reduce staff numbers, they could now accomplish more as many business activities were now being done more efficiently.

***i. It could make it possible for me to deliver goods more quickly to customers.***

Just over one quarter (28%) agreed they were now able to deliver goods more quickly to customers. The same real estate agent who had online photographs of his properties for sale felt it did this much more rapidly than before he engaged in e-commerce (#2). SME #44, information designers and analysts, found it was much easier to keep track of the companies to whom they sub-contracted. It improved the 'paper trail', so they were able to increase productivity and deliver completed products more quickly.

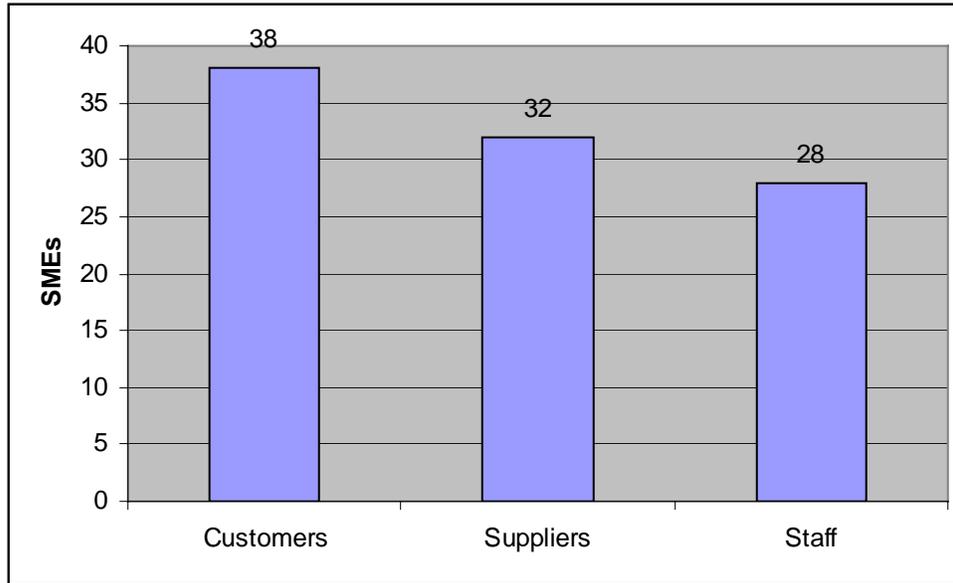
***j. It could reduce the need to hold large quantities of inventory.***

Just on one quarter (26%) said that e-commerce reduced the need for them to hold large quantities of inventory. However, one company, for auditing purposes, needs to hold 'large stocks of files of photographs, advertisements, everything' (#2). Online records do not yet appear to have the same legal standing as paper records. Perhaps this is an area that needs following up through legal channels. Another (#7) was emphatic in agreeing that his company now did not need to hold large quantities of inventory. They could order stock from interstate when needed, and it would be delivered the following day. SME #8, a pharmacy, found the opposite to be true, as his suppliers offered a larger discount for volume. Nor did the need not to hold inventory apply to those companies that had to import from overseas – as there was always a time lag before goods were delivered.

***k. By selling direct to customers I could bypass the middleman.***

Only 16% saw this as a benefit. Most still retained the traditional form of trading. However, for #5, he was both the middleman and the direct sales company. Online trading not only expanded his business, but made it possible for him to do things that he could not do otherwise. He did not need to hold inventory, but could arrange deliveries to be made directly from suppliers to customers.

By-passing the middleman proved to be a negative for #13 as his suppliers were now his competitors. This is what Ihlstrom (2001) calls 'channel conflict'.

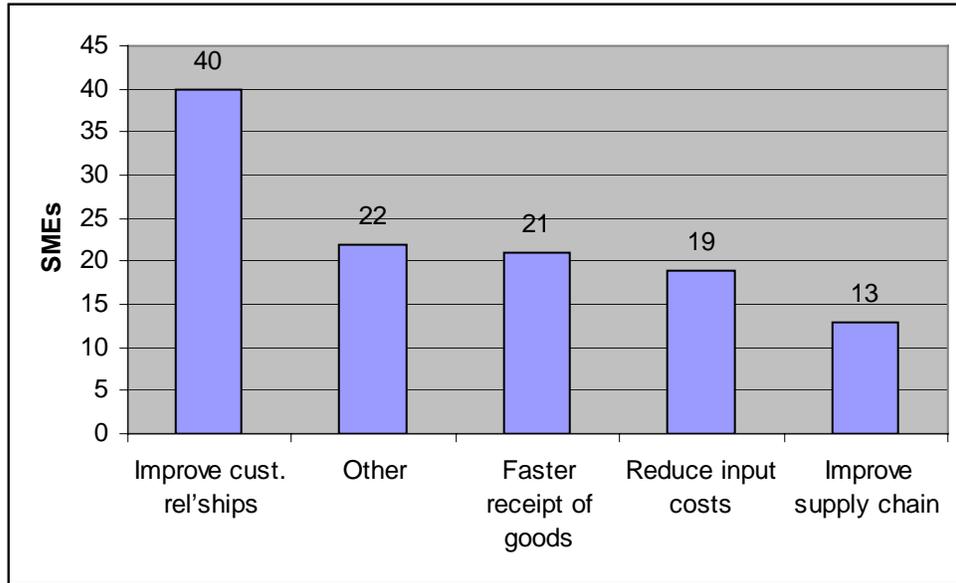
**Fig. 6.7.3 Important way of exchanging information**

***l. It could be an important way to exchange information with customers, staff or suppliers.***

All found that e-commerce had provided an important means of communicating with various sectors of their business. Three quarters of them (76%) found an improvement in their communication with customers, while just over half (56%) said it had improved communication with staff. Many of the latter were those firms that had staff scattered – interstate or overseas particularly. Of those who did not communicate with staff, several indicated they did not use it as staff were out in the field, without access to computers. Instead, they preferred to use mobile phones. They could be sure that staff would get messages, whereas if they had to wait until they had access to computers, there could be an unacceptable delay in picking up messages. The use of mobile phones had led to a greatly increased cost in telecommunications for several SMEs.

Almost two thirds (64%) felt it was an important way of communicating with suppliers. [This was also discussed in Part 7 of Section 6.6.]

Fig. 6.7.4 Possible benefits from e-commerce m-q



***m. It could improve customer relationships.***

Most SMEs in this section of the study (80%) agreed that use of e-commerce would improve customer relationships. A wine exporter, (#15), used electronic communications to improve his level of customer relations, especially with his overseas clients by pacing the delivery of shipments so as to reduce the tax they needed to pay. In many countries small shipments were free of tax, so this SME made sure he knew the tax requirements, and did what he could to keep the quantity shipped below the tax thresholds – or made it as low as possible.

We use email to retain the personal touch with customers. We handle anywhere between 30-40 emails a day. Each has to be answered personally before orders are placed. Once we had 22 emails from one person before he placed an order. But it was worth it as he has since become a regular customer (#15).

In response to maintaining customer goodwill #18 introduced Electronic Funds Transfer Point Of Sale (EFTPOS) to their business, even though it cost them money instead of saving it. Their clients wanted it, and it improved customer relations by having it.

Yet, electronic communication was seen as a two-edged sword as email could improve or destroy relationships. It is easy to offend through use of poor language. Employees tend

to be more curt in their expression online, and this, without the modifying effect of body language, can readily be taken wrongly (#5).

Conversely it can also harm customer relationships if customers prefer the personal contact (#43, #45). A watch repairer found that their best customer relationships came from face-to-face contact, not from the vagaries of email.

***n. By ordering online, I could get stock delivered more quickly.***

Almost half (42%) felt stock could be delivered more quickly if it had been ordered online. This was the case for any goods ordered from outside of the ACT. Some liked being able to order after hours for next day delivery. If goods were available locally, most ordered them by telephone or fax, not online.

If we used online ordering we would have to train more staff to have someone here all the time to be available checking emails and orders. We know faxed orders arrive, but we have all heard horror stories where the email order was not received (#9).

Another, (#10) a one-person photographer, preferred to have a hard copy of orders placed, so uses fax in preference to online ordering. Some suppliers are, according to #28, 'encouraging' companies to use online ordering by charging a fax levy on any faxed orders – even though the company is not yet in a position where it can comply.

***o. It could reduce input costs.***

Thirty eight per cent believed that it could reduce input costs. A liquor store (#15) had most of his clients overseas, but still had 4 shopfronts locally. If he did not have the local outlets he could operate from a warehouse without a shopfront. This would substantially reduce his input costs. He was even reaching the stage of considering asking his overseas suppliers to hold stock for him, and to ship it direct to his overseas clients as he ordered. None of this would have been possible without e-commerce. Several indicated that they would not have had a shopfront had they began trading electronic before establishing the traditional side of their business (#15, #17, #19, #21, #33). This would have resulted in a significant saving in input costs.

*p. It could improve the supply chain for my products.*

Just on one quarter (28%) could see that it could improve the supply chain for their products. Allied to this was a great saving in time:

It used to take 45 minutes just to fax through the orders compared with doing it electronically – it is now done instantly (#4).

*q. Anything else?*

Forty four per cent had other benefits. For instance, #5 had staff all over Australia and many of them travelled frequently. The company found it was a very effective way of managing their travel, especially could they find cheaper travel on the internet than through using a travel agent.

Not all those that had adopted e-commerce were keen to expand their activities if it meant that they would have to employ staff that were more computer-literate than they themselves were or had to have specialised knowledge or skills:

Our experience with government departments has turned us off having to have specialised staff in the company. When we try to contact people in government departments, they are on leave or at lunch, and no one can handle their work or make a decision in their absence. The whole thing falls apart waiting for them to return. We don't want to get like that so we prefer not to get to a situation where we need specialised staff (#9).

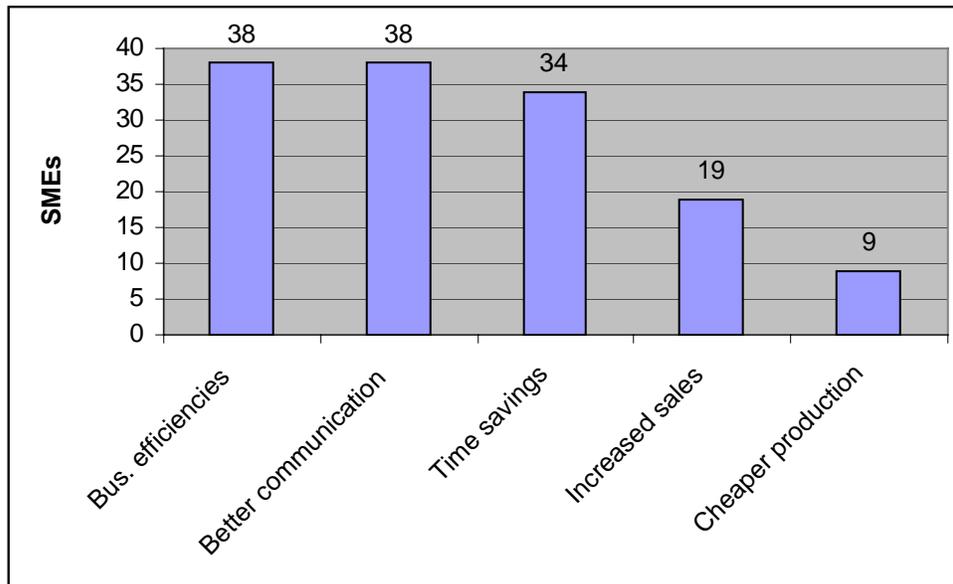
A high percentage of this SME's clients consisted of government departments.

This question discussed the benefits that adopter SMEs felt could possibly be achieved by their benefits if they adopted e-commerce. But what benefits have they actually achieved? The next question discusses these.

### 6.7.2 Other benefits already achieved

The previous part of this section discussed the responses SMEs made when asked to consider possible benefits that could be achieved; this part discussed their responses when asked what benefits they had already achieved.

**Fig. 6.7.5 Benefits already achieved a-e**



#### *a. Improved business efficiencies*

Three quarters of the SMEs in this section of the study (76%) said they had improved business efficiencies from e-commerce. Many were complimentary about the advantages to the firm from electronic banking, including payments and the ability to obtain financial statements, and the way it enabled them to control their cash flow better. They were able to gain a copy of their financial statements daily, reconcile them, and if necessary obtain a couple of days delay by paying an account by cheque.

Although not directly related to e-commerce, several indicated that GST had improved business efficiencies for them. Pre-GST they used to charge different sales tax rates for different clients, but now it was a uniform 10% to all clients. Where previously some organisations (such as educational institutions) were exempt from sales tax, now they

were all charged, and charged the same rate, and could claim back their own tax credits. This simplified matters for the adopter SMEs. GST offered other benefits.

Ironically, GST has improved things for us. It has made all businesses more diligent about keeping their books as they need to claim back on their GST credits. And they need to do it quarterly, so they keep books monthly. We get paid more regularly so they can claim back their credits. GST has simplified our account keeping too. Now the tax rate is a straight 10%, whereas previously we had different rates for different products, and different institutions were often non-taxed. Now we tax them all at the same rate, and they claim back their tax credits – even educational institutions (#9).

As well as simplifying the sales tax charged, e-commerce also made it easier to calculate discounts.

It saves us a lot of time adjusting to different percentages of discount that we allow to different types of customers. For instance, one large retailer may receive a 50% discount, whereas a smaller one may be given only 30% (#18).

A number liked being able to put their paper work on to their laptop computers and take them wherever they wanted. They could place orders, or do account keeping or other business. One partner said:

It has saved my sanity. It has given me greater convenience in how I operate. I can take my laptop anywhere to do what needs to be done without having to be in the business with all my paper files, feeling guilty about not attending to customers (#7).

Another organisation – with over 50 staff, many of whom travelled a lot – also used laptops to maintain productivity:

Staff just download their files on to their laptops, and off they go (#37).

A number now used databases as part of their office systems to streamline functions and to improve accuracy. Entries need to be put in once only, and all references to them are updated automatically. One said that using a database made updating of the web site 'dynamic' (#44). This firm had a full online catalogue of stock, and, by linking it to a database, kept it up-to-date and, at the same time, saved the cost of preparing print material.

One micro firm (#22) found that they now used less paper, so their work area was tidier, making it easier to be more efficient.

***b. Improved communication (with clients or staff or suppliers)***

The same number that said e-commerce improved business efficiencies also said that it improved communication – to suppliers, to customers and to staff – 76%. (The benefits of communicating online were discussed in greater detail in Section 6.7.3.) Electronic commerce had improved communication for three quarters (76%) of the adopter SMEs, but not all the time apparently:

When we can get on the Net! (#23, a frustrated user).

Email enabled several with large membership or customer lists to communicate with clients very quickly. They could also target specific groups within the lists.

We can reach all 200 plus students wherever they are – on campus, or at home interstate or overseas (#45).

Having records online made it easier to track the history of previous transactions. One restaurateur regretted that his system did not yet enable him to do that when he had a complaint from a customer. A small parts business found it very useful when trying to follow up on the steps that preceded a complaint.

When there is a complaint, we can more readily check up on what has been the history with a particular client, whereas it took a long time to check with the manual system. Any complaint can now be resolved much more readily. It saves time and improves customer relations (#18).

Another SMEs said it both did and did not.

There are suppliers who have web sites that run at a level that improves my ability to communicate with them and order from them. Then there are others with lots of flashy graphics that look fancy, but do not offer the basic services. If I can see the products that I want and I can order from them, then good, but many do not allow me both to view products and to order them online (#34).

***c. Time savings because processes automated***

Just on two thirds (68%) of adopter SMEs believed that they had achieved time savings through the adoption of e-commerce. Some of their comments included:

We save time, not because processes are automated, but we no longer waste time on other processes such as paying accounts by cheque (#5).

Particularly for updating PBS changes (#8, #50).

We have made huge time savings as most people want a response, and want it quickly (#22).

We save time (and money) as we now use email to transfer [architectural] drawings rather than transfer them to disk and courier them to our clients (#25).

***d. Increased sales***

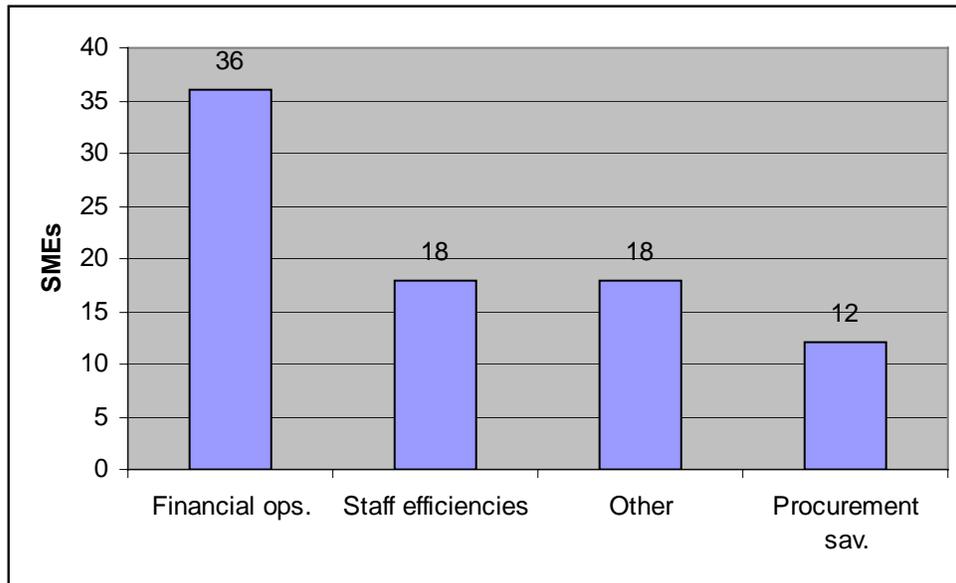
Just over one third (38%) felt that use of e-commerce had resulted in increased sales. Several indicated that increased sales had resulted from better dissemination of special sales information or from target marketing to specific client groups. Speed of response and faster delivery were also factors in increasing sales. A financial planner expected to gain an increase in sales as a result of enhancements to their web site.

If people could look up their financial planning data online, they could increase their holdings (#48).

It gives us better buying power. Appealing to a wider audience than just door sales means we can target a section of the market with just a small quantity of a product. Previously we would not have been in the market for a small quantity, but by targeting an audience, we can be (#15).

***e. Reduced production costs***

Only 18% indicated that it had reduced production costs, but his low figure may have been so low as there were very few manufacturers in this sample. Two SMEs did, however, point out that it is now cheaper for them to obtain stationery.

**Fig. 6.7.6 Benefits already achieved f-i**

#### ***f. Online banking or other financial operations***

This was high on the list of perceived benefits with 72% of adopter SMEs happy with online financial operations. Businesses particularly liked being able to get a daily copy of their financial statement, and felt that bank fees had been significantly reduced.

The bank has good online support. Being able to get a daily statement from our online banking system gives us better control of our cash flow. Bank fees were \$800 a month, but are now about \$700 (#18).

Online banking saves a lot of time as well as money.

Twenty minutes at my desk saves me an hour at the bank (#36).

Another expressed the greater sense of relief he experienced in knowing that staff were not now walking to and from the bank with large sums of money. They were able to handle the necessary financial operations with increased personal safety.

***g. Improved staff efficiencies***

Although 36% felt it improved staff efficiencies, most felt that it was that the same staff could now do more. They could be more productive. However,

It does not reduce staff. The more technical business becomes, the more staff is needed to cope with it (#13).

Another, a recruitment firm, said:

It does improve staff efficiencies over time. It has been a big cultural change for company staff, and the company invests a lot in staff training (#49).

***h. Savings in procurement***

Only 24% said that e-commerce made savings for them in procurement. Several mentioned things like stationery, but a luxury car dealer said:

It has *no* effect on procurement costs (#13).

***i. Anything else?***

Just over one third of adopter SMEs (36%) felt that they had gained other benefits. Links to suppliers had been a 'huge benefit' for a liquor shop:

For instance, one overseas supplier provided us with a list of stock of 3,000 different items on Excel, and we simply downloaded it into our web site. We did not have to key it in or to massage it very much (#15).

(Interestingly, the same firm refused to have a database as one of the competitors had started out with one, and had incurred 'huge costs' in the hundreds of thousands of dollars without it working effectively.) Electronic commerce had produced 'huge benefits' for #15, but he was unable to be more specific.

One company that employed 20 full time staff as well as 30 casuals with a high staff turnover liked being able to receive resumés from potential employees online (#35).

A number liked the convenience of being able to take information on laptop computers and work flexibly both in time and place.

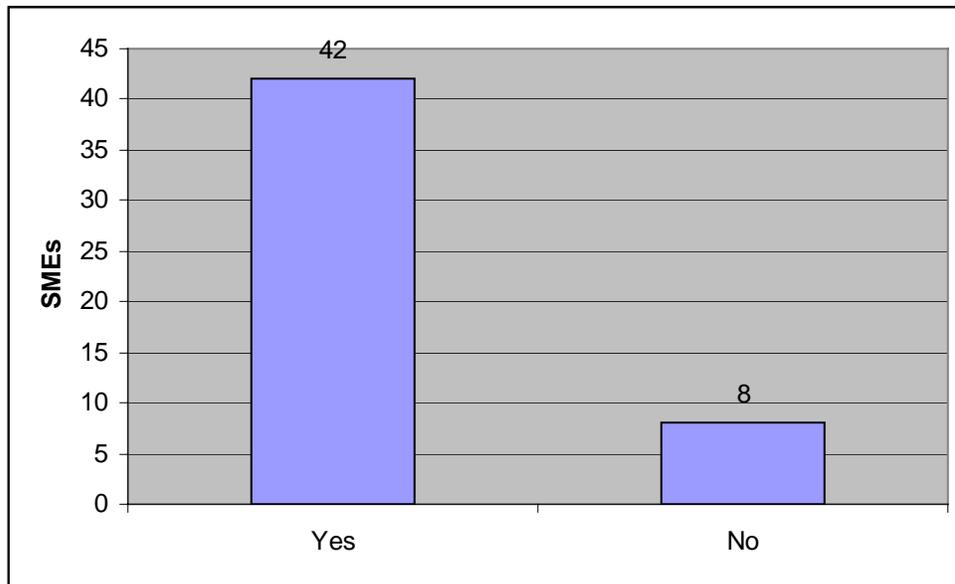
These benefits are all inter-related and inter-dependent. Speed in being able to do things led to savings in time, and increases in efficiencies of staff and of the business generally. Speed of response and of delivery improved communication with customers which often resulted in increased sales. Flexibility of being able to work anywhere at any time improved productivity as well as improving the quality of personal life.

These benefits are, for the most part, tangible. Yet e-commerce can also produce non-tangible benefits. These are discussed in the following section.

### 6.7.3 Any non-tangible benefits?

Adopter SMEs were generally positive in looking at benefits that could not be measured or were not tangible. Fig. 6.7.7 shows they believed they had achieved non-tangible benefits.

Fig. 6.7.7 Non-tangible benefits



Only 5 adopter SMEs believed they had achieved no non-tangible benefits from adopting e-commerce. The remaining 90% felt there had been a number of non-tangible and non-measurable benefits.

A recognition that e-commerce had **improved customer communication** was nominated by 36% of SMEs in this section of the study. Several specifically mentioned that customers liked the rapid response they had received with information to their email requests. SMEs, for the most part, realised that if they were using email to deal with customers, then they had to make sure that they responded promptly. Several said they had set up automatic responses so that customers knew that their queries were being handled, and the company would get back to them with full details to their request as soon as possible. Sending the automatic response told customers that their emails had not gotten lost, but were receiving attention.

That e-commerce had increased **convenience to customers** was nominated by 28%. This benefit was closely related to the previous one - improved customer communication. This applied particularly to international customers because of the difference in time zones (#45, #48). One company offers an online message service (similar to email) which is used extensively by their overseas clients (#43). Three mentioned that having a web site works as a means of referral, but what they seemed to mean was that it served as a means of their gaining customers.

A client likes to know that their own business will be advertised on the internet when he has seen other homes advertised there (#2).

Being seen as **progressive and up-to-date**, especially by others in the same business or by clients was named by 30%. This was considered to be quite important – the competitive advantage.

It creates an image that is essential to our business – without it we would appear amateurish (#5, #33)

**Development of reciprocal links** was seen as a benefit to 4 SMEs, but 2 were emphatic that they did not want to develop them, saying they preferred to be target specific, and not distract their customers by sending them to a different site.

Why send them to a bank or to a cake shop - the one next door wanted us to link with them - when we want to sell them a property? Let them organise their finances separately (#2).

Being online has produced benefits that would not have been possible otherwise – such as being able rapidly to **negotiate and confirm** contracts (#22) or purchase fire-sale goods in another country (#11). SME #12 found that more contractors now used them because they were online. Two were impressed by the ability to reach a large potential audience at a much lower cost, or to have more people aware of them – greater geographic coverage.

Two SMEs appreciated being able to compete on a **level playing field**. Their small size was not a disadvantage in the virtual marketplace (#23, #34).

Two mentioned **specific cost savings** in addition to the normal on-going savings in cost. SME #18 had hundreds of small machinery parts which were sold to different clients (such as private individuals, other SMEs, tradesmen, forward suppliers), each of whom received different discounts for different types of accounts. E-commerce allowed these discounts to be calculated automatically – once the initial account details had been established. SME #17 said that he now saves about \$1,000 a month that he used to spend on print advertising. He has been able to improve his whole business as he now logs the number of hits to his web site and where they come from, and targets his marketing according (target marketing).

**Target ordering** is now possible for #34. He can order more accurately – for the season, a particular event, specials or new products – as he can now see the products online before he orders them. Online ordering has reduced his isolation from the source of supplies. SME #13 saved time by being able to order direct from other dealers if they held stock he needed. Online catalogues of their stock made it possible for him to check easily what they held before he needed to order from suppliers overseas.

Two mentioned the advantage of gaining positive **control over their cash flow** as they were able to check bank balances before making payments. They could transfer monies between accounts as needed. One SME (#20) said that their bank support had been ‘unbelievable’, far superior to the service they had before going online.

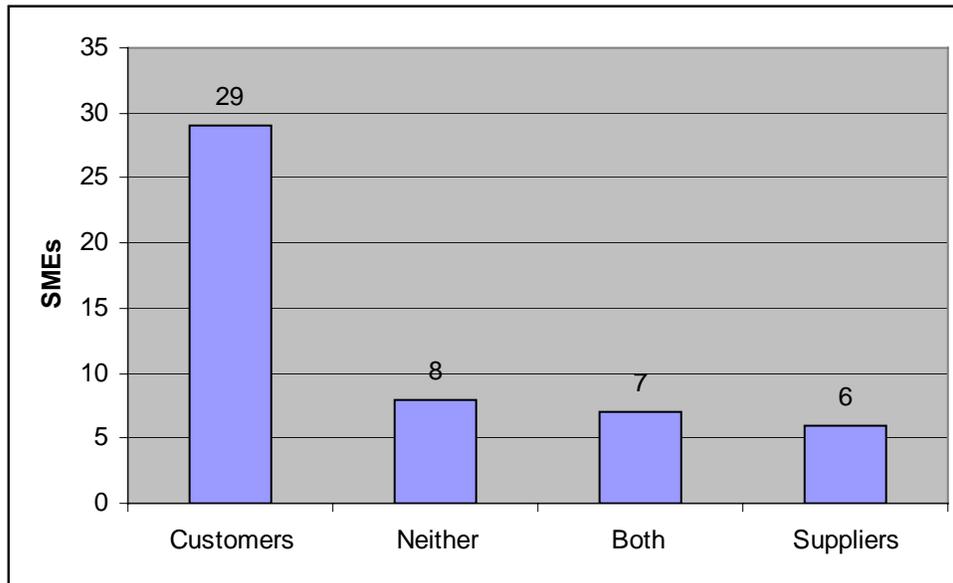
One (#3) said his own **attitude** to computers and to e-commerce had improved enormously, while #49 said that the increase in staff confidence and understanding of internal processes makes their jobs easier, so that they now operate more efficiently.

An investment education site felt that one of their great benefits was the **credibility and trust** they gained from potential investors because they included on the site photographs and investment stories of their own staff (#1).

In light of the benefits they had gained from the adoption of e-commerce, SMEs were asked what they found to be of greatest benefit – links to suppliers or to customers. This is discussed in the following section.

#### **6.7.4 Greatest benefits - links to customers or to suppliers**

This question asked what has been your greatest benefit – your links to your customers or to your suppliers? Once they have made the decision to go online, SMEs must have in mind some idea of how they will benefit from the links. This question was included to discover which segment of their relationships provided the greatest benefits from their going online. Fig. 6.7.8 summarises the results.

**Fig. 6.7.8 Segment that provides greatest benefits from the links**

In his thesis, Poon (1998a) found that the internet was used to support customer relationships rather than supplier relationships. Further studies (Poon 2000; Poon and Swatman 1998b) also found that customer participation in online commerce was critical to the success of SMEs. This section of this study found the same result with 58% saying they had benefitted most from the links with their customers. Only 10% nominated suppliers, with 12% saying they gained equally from both customers and suppliers. A surprising 14% said their greatest benefit was from neither. It appears that the business itself gained from having the online access, for reasons that had little to do with either customers or clients, but more to do with the internal needs of the business itself. Such needs were links to government sites or to other sites that provided needed information, or to the ATO or to banks.

Having considered the possible benefits they expected to achieve from adopting e-commerce, it is now time to look at the disincentives that may have held back SMEs from adopting.

## **6.8 Resource implications as disincentives**

Different studies (Poon 1999; Begin and Boisvert 2002; Hogan 2001; Kotwica 2001; Lewis 1997; Yellow Pages 1998) support the contention that there is a commonality of reasons that may deter SMEs from adopting e-commerce. This was discussed in detail in *Chapter Two, Section 2.4.3 Perceived disincentives to the adoption of e-commerce*. Many of these disincentives or inhibitors to adoption were related to the availability of resources. Question 10 was included to discover if the SMEs surveyed in this study voiced similar reservations.

### **6.8.1 Disincentives that held you back from using e-commerce in your business**

Although the SMEs in this part of the study had all adopted, had there been any factors that had been disincentives to the adoption process? What were the resource implications relating to time, capital, personnel, technology, privacy and security? In addition to the disincentives, what hurdles or obstacles did they encounter during the process? What disadvantages have they noticed from adopting? What has been the greatest disadvantage? These issues are discussed in the several parts of this section.

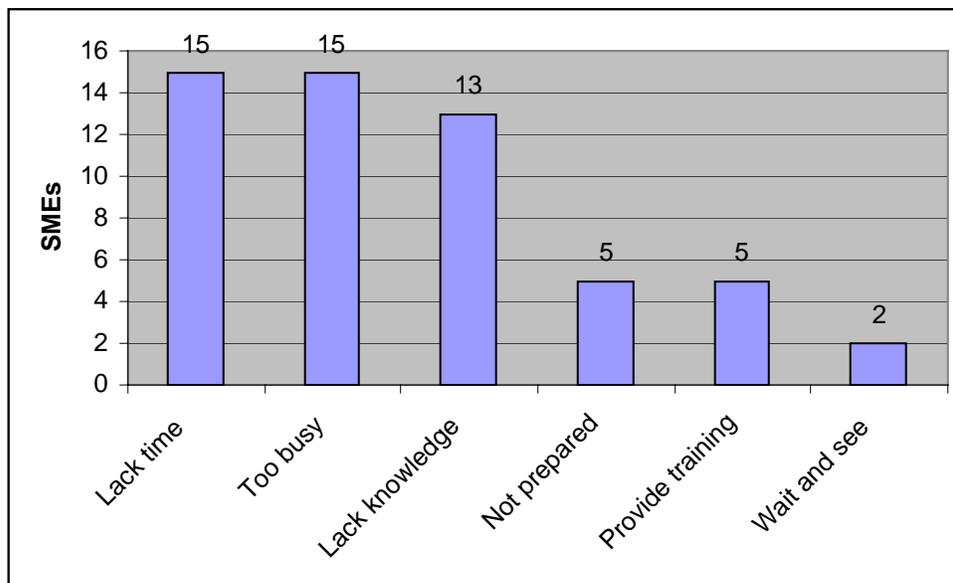
#### **6.8.1.1 Time issues**

The major factor stopping SMEs from adopting e-commerce appears to be lack of time – lack of time to find out about it, to learn how it operates, and to arrange the purchase of necessary equipment and training needed while still meeting all the other demands of their business (Singh and Slegers 1998; Yellow Pages 1998). SETEL, for instance, when asking SMEs throughout Australia for submissions relating to their use of telecommunications, received only four responses (Brown 2001). Although practically every previous survey relating to reasons SMEs used as not adopting e-commerce referred to time issues, in this study issues relating to time seemed of minor significance. Possibly this can be explained by the fact that all SMEs in this section of the study had

adopted e-commerce, and had decided that it would be in their best interests to do so regardless of the cost in any terms.

Parts *a-f* of Question 10 related to time and/or knowledge issues. Lack of knowledge was seen as a time issue as the SMEs that did not know enough did not have the time to find out what was needed. As can be seen in the Fig. 6.8.1 below, only 30% of adopter SMEs indicated they lacked the time or had too much else to do as reasons that delayed their uptake of e-commerce. Seventy percent did not see time issues as impacting on their decision. Fig. 6.8.1 illustrates the various time issues that were disincentives to the adoption process.

**Fig. 6.8.1** Time issues that held adopter SMEs back from using e-commerce *a-f*



***a. I did not have enough time to find out what is required.***

Thirty percent gave this as a reason for their delay in adopting e-commerce.

The biggest disincentive was the time it took in shopping around. I was so overwhelmed with information that eventually I put it all in the too-hard basket (#10).

The other 70% 'made the time'. They saw it as an integral part of doing business, so incorporated the adoption into their strategic planning. When asked if they had to give up other tasks to be able to fit in the adoption of e-commerce, no one felt there had been a choice. It had just been a matter of making the adoption a priority and fitting in what needed to be done (#2, #5, #7, #13, #21, #30, #43).

***b. I had too much else to do.***

Many small business people simply lack the time and energy to do other than to rush from task to task associated with keeping the business viable.

The major difficulty identified by SMEs in moving from being a conventional business to an online business was the time involved in setting themselves up as an online business (Yellow Pages 2001: 34).

This lack of time manifests itself particularly in an inability to consider the strategic direction of the enterprise.

Yet initiatives like a web page with transaction capability only make sense if they are considered and costed as part of a strategic planning exercise for the business as a whole (SETEL 2001b).

With only one exception, the 30% who 'did not have enough time to find out what is required' were the same 30% who claimed 'they had too much else to do'. Eleven of the 15 SMEs in this category were 'micro' businesses (that is, with fewer than 5 workers in the business), while the remainder had a high percentage of casual or part-time staff. It appears that these business operators were so busy meeting all the demands of their business that they did not have the time to focus on anything other than keeping the business running. Yet, once they made the decision to investigate what e-commerce could do for their business, they were able to 'make the time'. The 70% who did not give this as a reason considered the adoption as a normal part of their business strategy which needed to be incorporated into the business as much as any other part.

***c. I did not know enough about what is required.***

About one quarter (26%) of SMEs indicated that they ‘did not know enough about what was required’ to get started. However, once they decided to go online they soon found out. The other 74%, even if initially they felt they did not know enough, knew where to go to find out what they needed to do. In a number of instances (#1, #4, #15, #21) it was a matter of serendipity – having a family member or friendly neighbour or business associate who was able to help.

***d. I did not feel properly prepared to adopt it [e-commerce].***

Interestingly, only 10% felt they were not prepared, even though a higher percentage (30%) ‘did not have enough time to find out what is required’ or ‘had too much else to do’. Ninety percent felt they were prepared to integrate e-commerce into their business. One business, an air conditioning and refrigeration service company, said:

Time is our biggest constraint. None of us is computer literate, so it would take a lot of time which we cannot afford to learn how to use it competently. When the computer plays up, it costs us enormously in time. It is cheaper for us to do it the old way – that is, with pen and paper books. Yet we need it for GST (#9).

***e. I would have to provide on-going training of staff to keep up-to-date with what is happening.***

Users of the internet need education and training to be able to use the internet and to remain up-to-date with changing technologies. This is an ongoing cost which must be borne by all businesses engaging in e-commerce (Calabuig and Jurado 2001; Kotwica 2001; Yellow Pages 1998). In this study, although all SMEs realised they needed to keep up-to-date with changes in technology and how it could be used in their businesses, only 10% saw this as a deterrent to their adoption of e-commerce. The other 90% accepted that on-going training would simply be another cost to be borne by the business.

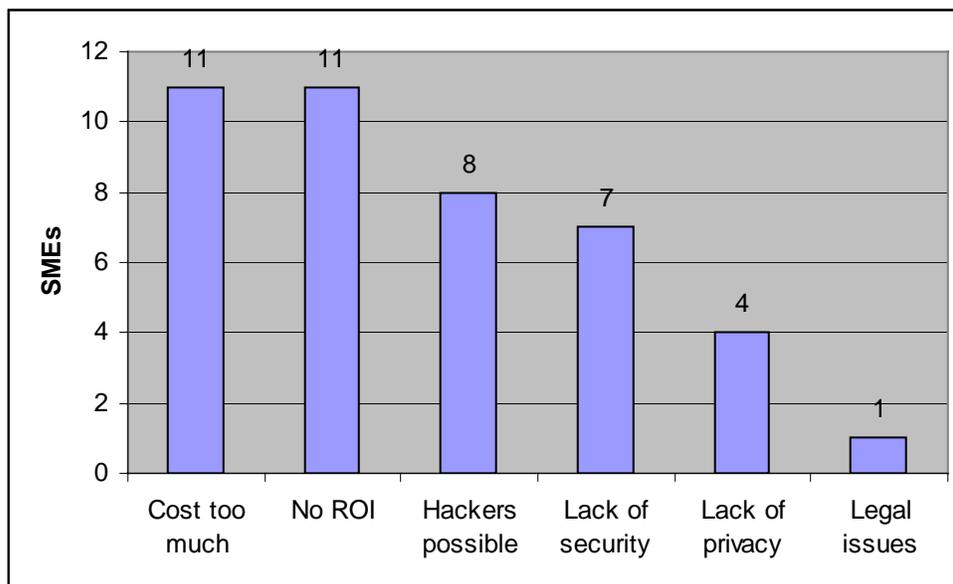
*f. I planned to wait until I see others succeeding.*

Most of the SMEs in this part of the study (96%) adopted once they had decided in favour of doing so. Only two adopters ‘planned to wait until they saw others succeeding’. This reflects on the innovativeness of the business owners. [This was discussed further in *Section 6.3 Decision makers as entrepreneurs and early adopters.*]

### 6.8.1.2 Cost, security and privacy issues

Cost, security and privacy issues have been cited by a number of authors as potential deterrents to the adoption of e-commerce, not only by large businesses, but also by SMEs. Kotwica (2001), for instance, in her survey of 120 companies situated in all continents, reported that resistance to the adoption of e-commerce by SMEs included security issues, resistance to change, and start-up costs. Similar issues were also supported by Papazafeiropoulou et al. (2002). In this study, although there were some adopter SMEs that recognised them as being potential issues, there were actually few who indicated that these issues had been constraints in their consideration of moving online.

*Fig. 6.8.2 Cost, security and privacy issues for not adopting g-l*



***g. It cost too much to get started.***

Lewis (1997), in researching factors leading to non-adoption of innovations in general, also found that cost was a significant contributory factor. Access to the internet and electronic marketplace requires considerable time commitment and financial resources – resources which many (both consumers and businesses) believe they cannot afford as they do not believe there is a sufficient financial return to justify outlaying the cost of the investment (Calabuig and Jurado 2001; Kotwica 2001; Poon 1999; Yellow Pages 1998). Twenty two percent of SMEs in this study reported this had been a deterrent towards their adoption of e-commerce, while 78% indicated that, although they recognised there would be a cost in getting started, they did not see cost as a major issue.

***h. There was not sufficient financial return to justify outlaying the cost of the investment.***

This question was related to ‘Part g’ (above).

Damanpour and Damanpour (2001) cited survey evidence that many firms undertaking e-commerce projects do not appraise or evaluate the return on investment in traditional ways. Betts (2002) and Greengard (2000) both pointed out that businesses adopting e-commerce are ignoring traditional means of assessing cost benefit and realising that ‘it takes money to make money’. Despite bricks-and-mortar business practices of always undertaking a ROI assessment before adoption of any new process, businesses now are no longer following the old rules of return on investment but are investing continuously in technology. They recognise the value of being first.

There is a tremendous edge in pre-empting the competition, but it is essential to balance speed with the ability to deliver on your promise. If you can’t deliver, your reputation can be damaged, even destroyed. The problem can be particularly serious for a decades-old company that has a brand name associated with trust and integrity (Greengard 2000).

Indeed, there is now a growing recognition that consideration of return on investment is incompatible with developing innovation. Pfeffer, Professor at Stanford Business School, in *To build a culture of innovation, avoid conventional management wisdom*, cites a

number of global companies that are increasing their adoption of innovation as they proceed to expand their companies and their profits by recognising this.

How can you innovate if you can't do anything because of all the constraints, including the constraints of budgets (2002: 100)?

In light of this change in expectation, it was anticipated that adopter SMEs would not have considered the need for there to be an adequate return on investment, but would have invested in the process of adoption for other reasons such as being seen at the leading edge of their industry. This did not prove to be the case for most (78%). One, a real estate manager, said

Actually the reverse is true. There IS sufficient return to justify the investment. It IS cost effective (#3).

Of the 22% who believed there would not be sufficient return on investment, only 10% were the same SMEs that felt it cost too much to get started in the first place.

I always wonder about the cost benefit of it. Would I be getting an adequate return on my outlay? Each time I dial up it costs me money, whereas in government departments, someone else pays. And when the line drops out, I have to pay the cost of another call (#10).

'Always on broadband access' would remove this problem.

Two specifically mentioned the cost and lack of appropriateness of MYOB for SMEs, although MYOB is an accounting package, and was not considered part of e-commerce.

MYOB was available, but it was far too expensive and had much more than I wanted or needed (#7).

If we did all the courses we could make better use of it, but at present we see no cost benefit in adopting it in any greater way. MYOB is cumbersome and we would have to do courses to train our staff other than our bookkeeper. BAS is mailed as we haven't yet had time to learn how to do it online (#9).

***i. Hackers could get into the data files of my business.***

The number one SME concern in relation to e-commerce from the *2002 Yellow pages e-business report* was security and concern about the ability of people to hack into their

systems. Businesses are concerned that their databases will be open to hackers (Fergusson 2001). One SME, (#5), a business that employed 50 staff spread over all Australian states, had a number of large government contracts and engaged in extensive innovation research and adoption, expounded at length on the real threat of hackers.

We get continued attacks from hackers – which we report [to government authorities or computer societies] and/or deal with in other ways. We have installed a high level of protection – at a level that is much higher than most SMEs could afford. But we know it is essential to the integrity of our business (#5).

Despite this and frequent media reports about hackers and the damage they could do to a business, in this study only 16% recognised this as a potential threat.

***j. I was concerned about the security of customers giving credit details over the internet.***

Many people are reluctant to give credit card details over the internet without any assurance that details will not be available to others, a concern not without a sound basis. Automatic Teller Machines (ATMs), EFTPOS and the telephone have become standard means of conducting financial transactions for most Australian adults. However, while internet-based transactions are growing exponentially, they are still small in comparison to other types of electronic commerce. The primary barrier to internet shopping by consumers has been identified as a fear of giving credit information over the internet (Calabuig and Jurado 2001; Clarke 2001; Raman 1996: 18).

In this section of the study, only 14% of SMEs indicated that this was a concern. It had, however, proved a major deterrent to one SME (#12) who believed that if customers could pay money into his bank account, then they could also take it out.

Credit card details are not the only area of security concern. In 2002, Stanhope, the Chief Minister of the ACT, warned businesses to be aware of fraud involving invoices. Fraudulent invoices were being sent to businesses for services that were never requested or supplied. The most prevalent services involved were business register and directory listings.

It seems that this type of fraud has become more common with the expanded business use of the internet and e-mail (Stanhope 2002).

It appears that businesses must be constantly on their guard against fraud. When one type is identified and steps taken to guard against it, another takes its place.

***k. It is difficult to guarantee the privacy of my customers.***

As they enter the electronic marketplace, not only are many consumers concerned about privacy issues, but businesses also are concerned about customer's privacy (Willis 2000; Yellow Pages 1998). In this study, however, only 4 SMEs indicated that guaranteeing the privacy of customers was of concern. The remaining 92% were quite satisfied with their ability to ensure customer privacy. EDI, often over-looked by e-commerce practitioners, seems, however, to offer a safer means of transferring financial data across communications lines so maintaining privacy of transactions (Callabuig and Jurado 2001; Clarke 2001; Poon 1998; Raman 1996).

***l. I could not be sure that contracts from other jurisdictions will be honoured.***

According to a number of other researchers (Calabuig and Jurado 2001; Clark et al. 2000; Hoyle 2001; Willis 2000) businesses are concerned about jurisdiction and that contracts are enforceable in an environment that exists outside traditional legal boundaries. This same level of concern was not supported in this study, with 98% of SMEs expressing satisfaction with the level of legal security. Perhaps this high level of satisfaction was due to lack of information about possible inequalities of enforcement. Only one SME indicated that this had been an initial concern, but since adoption of e-commerce, several others (#13, #14, #30) had learned to their cost that contracts are difficult to enforce across jurisdictions. (See also *Section 6.2.*)

In light of the experience of these few, governments need to cooperate to provide the legal and statutory regulation under-pinning which will ensure the fulfilment of electronic contracts regardless of the jurisdiction in which they originate. The Australian Government is taking steps in this direction, but not enough has yet been done to reassure businesses. Its *Policy framework for consumer protection in electronic commerce* (Hockey 1999) set out the coalition government's policy for consumer protection in

electronic commerce. It first discussed the context in which this framework must be developed, focussing on the nature of electronic commerce and its uptake in Australia. It also looked at the Government's overall policies for the information economy and consumer protection. Its vision was to empower Australians to be at the forefront of global commerce, both as online consumers and as online traders.

Australia will establish a reputation around the world as a centre of excellence for business to consumer electronic commerce (Hockey 1999: 7).

Development of this policy had not yet reassured Australian SMEs in this study.

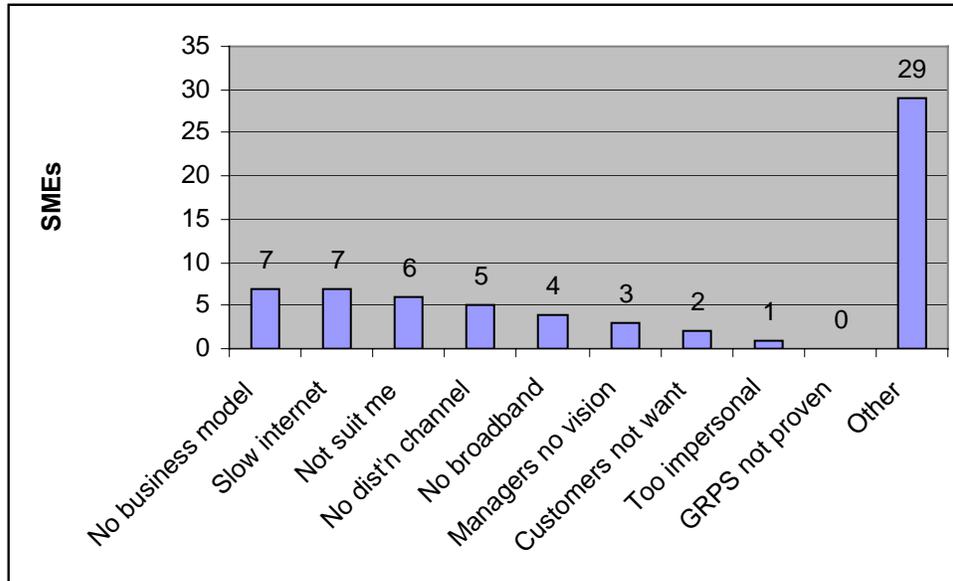
### **6.8.1.3 Technological issues**

Different studies support the contention that there is a commonality of technological reasons that may deter SMEs from adopting e-commerce (Ah-Wong 2001; Auger and Gallagher 1997; Yellow Pages 1998). These factors include low levels of understanding and knowledge of e-commerce, lack of knowledge of what was involved, lack of infrastructure and the cost of investment, poor product match (what some researchers have called 'not suited to my type of business'), along with uncertainty about security issues.

According to Ah-Wong's report to the House of Lords (UK) Select Committee on Europe as part of its *2000 Inquiry into e-commerce*, the many reasons why smaller firms are not performing as well as larger ones in the adoption of e-commerce include the high peak-time UK network access charges, which is due 'to the local loops, the unbundling of which the government is currently addressing' (Ah-Wong 2001: 99). Issues of a similar nature were not mentioned to any great extent by SMEs in this part of the study.

Fig. 6.8.3 illustrates technological concerns they had.

Fig. 6.8.3 Technological issues m-v



***m. It was difficult to locate suitable business models and technologies needed for e-commerce.***

Some 4 SMEs gave this as a serious consideration. Allied to it was the lack of time to locate what was needed.

I know what I want from a system, but I need two days to go to look for it, and I don't have two days (#7).

Others had specific needs that could not be filled by off-the-shelf products.

This was a problem for us, but we were able to overcome it eventually. We could not find any software that did what we wanted. Apparently it had not been done before (#4).

***n. Access to the internet was too slow.***

The simplest form of communication can be carried out over 'plain old telephone technologies', but large volume e-commerce needs technologies that can support the

rapid transmission of large bodies of data (Phillips n.d.; Steinke 1999). The technology of e-commerce depends on the existence of a reliable infrastructure of computer networks and telecommunications. Although broadband telecommunications is preferable and, indeed, necessary for large businesses dependent on rapid and reliable response time, as the study into rural small businesses by Papandrea and Wade (2000) indicates, it is not essential for small businesses. Although broadband access is desirable, it is not essential unless a business has a high volume transaction need. It does, however, according to Tiernan (2003), have implications for improved volume of business when *customers* have broadband access.

In this study, only 14% of SMEs indicated that internet access was an issue. Complaints about drop-out of dial-up modems suggests that use of broadband would have improved internet access. Perhaps SMEs in this study were willing to accept what they had as they knew of nothing better. No one can appreciate what he has not experienced.

***o. It did not suit my type of business. My products are too specialised to be sold over the internet.***

One of the main reason given by SMEs for not engaging in e-commerce was the belief e-commerce would not work for their products or services. Business operators often feel that their business is not suited to the demands of e-commerce, that their business is of a local nature only, that e-commerce is too complex for their business, or that their business is of a nature that negates using e-commerce (such as a personal hands-on service) (Clarke 2001; Poon 1999; Yellow Pages 1998). In this study, only two adopter SMEs gave this as a disincentive to their adoption of e-commerce - not surprising when all of them had already adopted. (See analysis in *Chapter Five, Section 5.9* for a different view.)

***p. I did not see it as a real distribution channel.***

This question is related to Part *s* (below) where SMEs said their customers did not want it. Five SMEs indicated they did not see e-commerce as a real distribution channel. SME #9, an air conditioning and refrigeration service company, said their product could not be

sold over the internet, while #32, a one-stop bridal service, did not see that they could use the internet as a distribution channel for their specialised and personalised service. The others included a cleaning company, a medical centre and an orthodontist – all offering services that needed the personal approach.

***q. I was waiting until broadband facilities were available to my business.***

Over the past several years TransACT has been rolling out broadband facilities to the whole of the ACT, one of its objectives being to provide broadband access to businesses as well as to private individuals in the Territory. To this end, it was anticipated that a number of businesses, particularly SMEs, would avoid the cost of setting up ADSL or other broadband access until it was generally available through the TransACT network. Extrapolating from NOIE's reporting of use of the internet, dial-up and broadband facilities as discussed in *Section 2.6 Technical infrastructure required to facilitate e-commerce* (NOIE 2003a), it was expected that three quarters of SMEs in this study would have access to and use broadband. This, however, did not appear to be the case. Only four SMEs said they had been waiting for broadband facilities. Most others, even though they did not have broadband access, seemed quite content with the speed of their service. If customers have broadband access, it is quite a different picture, according to Tiernan (2003) who reported the Forrester study that anticipated an increase in sales volume accompanying the increase in broadband access in the USA to an estimated \$95 billion (US). Obtaining *reliable* access to the internet was of greater concern than the speed of the service. Many SMEs in this study complained of the lack of reliability. (See also Part *n* in this section.)

***r. My managers lacked the vision to appreciate the advantages offered by the technology.***

Innovation theory says that management must be involved or support the adoption of the innovation if it is to succeed (Brown 1981; Clayton 1997; Eder 1997; Malecki 1975; Owens 1996; Rogers 1983). As all SMEs in this section of the study had already adopted

e-commerce successfully (apparently), then it was anticipated that managers would have been supportive of the process of adoption.

This was refuted by the first SME interviewed:

Our biggest obstacle has been the lack of vision of managers – although they are entrepreneurial in nature, introducing many other innovations into the business, they have been very closed to the potential advantages of internet technology. It has been a real struggle to get them on-side, but they are beginning to see the benefits now (#1).

In most instances, however, management was closely involved, not only with the decision to adopt e-commerce, but with the adoption process. One SME, a roofing supplier, was persuaded to adopt by one of his staff, even though his own inclination was not to do so. As with SME #1, he was pleased with the outcome as it had greatly improved his business efficiencies. However, he continued to resist the use of online banking services.

*s. My customers did not want it.*

In other studies a number of businesses expressed the belief that most of their customers were not ready for e-commerce (Colvin 2001; Yellow Pages 1998). This belief was also expressed by a number of SMEs in this section of the study, although only two indicated it had been a consideration in their own decision to adopt. Indeed, #4, a food wholesaler was adamant that his customers were not ready for it as many of them did not even own a computer, but he felt he had to adopt as it was the only way in which his business could remain viable. Prior to his adoption of many elements of e-commerce, his staff had to re-type orders and send them by fax to his suppliers, with a consequent high error rate. Now orders went directly into computers, where the one entry was used for a number of functions – ordering, checking of delivery from his suppliers, sorting for delivery to his customers, confirming of payment to delivery contractors, checking of errors in delivery, and invoicing customers. Here, then, although the customers were not ready for e-commerce, the suppliers were.

*t. It was too impersonal.*

According to Tom Cutler, president and CEO of Ft. Lauderdale, Florida-based TR Cutler, the biggest mistake a company can make is to forget that people are at the heart of successful online business.

Everyone in the loop – customers, employees and suppliers – must benefit. There must be a return generated from an online environment for its recipients and the business it represents. Content must be developed within a community framework for the successful generation of business-to-consumer, business-to-business and business-to-employee activity (De Witt 2002: 35).

As in any business, customer retention is the key to effective online management. If an online service interferes or conflicts with long-established face-to-face relationships, then it becomes a deterrent rather than a reason for doing business with a company.

Many SMEs believe there is no substitute for the personal approach to customers, and that e-commerce is too impersonal. Indeed, some businesses rely entirely on personal contact. Many also believe that word of mouth recommendations will be lost with e-commerce (Colvin 2001; Singh and Slegers 1998: 13; Yellow Pages 1998). Not surprisingly, only one SME (#46) in this section of the study believed that; all had adopted e-commerce, so obviously felt it would support their type of business. The only one that gave this as an issue said that:

This was a consideration, but it is easy to build up a good level relationship. Personally I prefer to use the phone, but do use email mainly. It depends on the type of communication. For example, for debt follow-up, I use the phone as people respond better to the phone – it is directly personal. However, one advantage of email is that it keeps a trace of messages – something that is often overlooked with the phone (#46).

Indeed, email can foster the development of good and close customer relations, particularly with international or other distant customers when it is impossible to have face-to-face contact. It is the overall business strategy more than a specific technical solution that allows e-commerce to stream-line business, cut costs, accelerate turnaround and expand markets (De Witt 2002).

***u. Telstra's new wire-less technology, general packet radio service (GRPS) for mobile phones, was not yet proven enough to substitute for broadband facilities.***

At the Communication Research Forum 2001 a number of speakers had mentioned the potential advantage of this technology (described by Frith (2001)) for small businesses, particularly those who had workers in the field, but not one of the SMEs surveyed in this study had even considered it. Several (#5, #9, #27) indicated that they preferred to use mobile phones rather than email for in-the-field communication, and that they saw this new technology more as a toy at this stage. One (#38), that called itself a virtual company, suggested it could offer some possibilities in the future, but not at present.

***v. Any thing else?***

Although SMEs were given the opportunity to discuss any other technological issues relating to their adoption of e-commerce, they did not raise any others.

**6.8.1.4 General issues**

Most adopter SMEs had some reservations about adopting e-commerce, but none of them was really serious.

We did not have any real disincentives. We felt we just had 'to get stuck into it', but we did strike a number of problems (#4).

Others explained their issues thus:

The language people use when using email is an on-going problem. When people use email they use language different from other communication methods – it is short, terse, bordering on rudeness at times. They think less of the reaction of their message to the receiver. This has been a problem for us – both internally, and to and from customers. (#5).

Some staff misused the internet – it became a distraction for some, and their productivity suffered (#5).

There are some online pharmacies in Australia, but they are not supported by the Pharmacy Guild. They mostly are providers of information rather than sales sites. Lots of us are just watching and waiting for matters of ethics to be resolved (#8).

The rest of these comments were of similarly small consequence. These factors acted as disincentives to SMEs in their adoption process, but were not real deterrents. In spite of the disincentives, they went ahead with the adoption process. In proceeding with the process, they encountered challenges – hurdles or obstacles. The following question discusses the challenges they experienced in their adoption process.

### **6.8.2 Obstacles or hurdles encountered in the process**

Many researchers have provided a common list of perceived disincentives to the adoption of e-commerce as discussed in Chapter Two, Section 2.4.3. Few, however, have explored those hurdles or obstacles that were encountered during the adoption process. Ah-Wong (2001) and Begin and Boisvert (2002) provided two studies that did investigate these in more detail than had been done previously.

This question was included to discover if there existed any inhibitors that SMEs encountered during the adoption process. This was an open-ended question, so any comments should be treated meaningfully. If interviewees felt strongly enough about something that they felt it worth mentioning, then the comment should be considered important. If more than one SME mentioned the same subject, then that subject should be recognised as being of greater importance.

**Communication** was high on the list of challenges faced (#19, #21, #22, #37, #43, #44, #45). There was the lack of understandable communication between staff of SMEs and that of web site developers. Developers thought they knew better what was needed. They ignored suggestions from SMEs, and developed sites along lines that they thought was the norm without considering the specific needs of the adopters. For instance, #44 wanted the web site developers to use postcodes as customer locators in their web site, but the developers, used to a metropolitan audience, failed to realise the significance postcodes had for farmers who comprised the target audience. Two others with large numbers of students had to redesign the site after they took delivery so as to link to educational sites

such as [www.student.net.edu.au](http://www.student.net.edu.au) and [www.edna.net](http://www.edna.net), links which the site developers could not see were necessary.

Communication was also a difficulty with **ISPs**. SMEs said that ISPs spoke in 'technobabble' or used 'gobbledegook'.

We find that ISPs speak gobbledegook, and are unable to speak in a language we are able to understand. We are on our third go to establish what we really want, They do not want us to be able to buy from them; they just want to sell to us (#42).

Other difficulties with ISPs included that there were too many from which to choose, they were unreliable, they kept on 'going broke' (#22, #27, #42), there was a wide variation in the pricings and quotations from various providers (#4, #41), there was a lack of transparency with contracts, it was difficult to change contracts, there was often no internet access and frustrating constant dropping of the access line. There was a general lack of reliability.

Because of their lack of understanding and knowledge and ability to explain what we are getting into, our decisions were not always the best initially. I chose the cheapest rate, but have been using much more so it is costing us lots more. When you go over the limit they charge a higher rate for total usage, not just for the excess (#27).

Because of experiences such as this, SETEL has taken up the issue of charging with the ACCC so that there is more transparency with differentiation in charging.

The language of computers – error messages and commands that are too cryptic – also came under fire (#3, #6).

Finding the **right people for the right job**, particularly for web site development, proved to be a major obstacle (#4, #14, #18, #25, #33, #34, #35, #44, #45, #43).

At first we had different people for hardware, software and email, and each blamed the other for any difficulties. Now we have one company that supplies the lot (#25).

Finding the **right application** for the job was a problem for several (#4, #17, #18, #21). A number ended up having specialist applications developed for them as they were unable to find a suitable model.

There is a **high cost** of implementation – several thousands of dollars to get the site built, to register domain name, install telephone line, contract an ISP to host site, plus costs of

conversion of manual systems, making computer systems all compatible, and upgrading of all systems (#4, #5, #17, #22, #31, #34, #35). Several felt that there was gross over-charging. SME #4, a small firm with six employees and two contractors, was quoted \$29,000 plus \$5,000 per annum to build a system and to maintain it for him. He dismissed this as being totally unreasonable. Another said they could find a vastly cheaper hosting service overseas but they have a business policy 'to buy Australian wherever possible' (#5).

**Maintenance** of site is a burden, but once they have a web site, SMEs need to keep it up-to-date. They need to add new information to it constantly to encourage people to return to it. Several felt it was difficult to measure the return on investment.

It is hard to quantify the value of it, but it is essential to have a web site in our business (#5).

As **staff** did not feel **ownership** of the process, it was often difficult to get staff to provide content for the site, or to keep it updated – it was not a top priority for them (#1, #3, #6, #35, #44). It is often difficult for staff to accept a new procedure as part of their job:

Email is essential, but staff still do not see it as such (#50).

Another found management of email caused difficulties:

We have too many email addresses that do not link back to the main account; we've got different email addresses for different positions, but need them to come back to the main account when staff are absent or information needs to be passed back (#20).

Many adopter SMEs complained of the lack of **post-delivery support** or customer service from the site developer consultant, from ISPs, from broadband suppliers, from Telstra, and from service providers generally. Systems go down too often (losing the firm money), but there is little support from the providers. Concomitant with this was a lack of reliability of various elements of the system.

We paid them a lot of money, but there are errors on the site (mainly spelling errors) and they will fix them only if we pay them more. They have offered us access to the site for us to correct them, but at an extra cost (#43).

**Regulations** from government proved major obstacles for several. For instance,

Government regulations impinge on what we can do. Government has a lot of legislation which requires us to jump through lots of hoops regarding accessibility issues, privacy, firewalls to keep the structure safe... (#37).

Their own **lack of knowledge** was a difficulty for a number of SMEs (#9, #17, #22, #32, #47).

I was computer-literate, but there was so much more that one needed to know before one could adopt e-commerce satisfactorily. It was frustrating to learn in the beginning at my low level of competence (#9).

The whole thing is like a maze. If you don't know all about it, there is so much to learn that it all gets too much. You get swamped in detail and it is easier not to do anything than to do something (#10).

My initial reaction was that it would fill a hole for the time being. I saw it as a temporary solution only, but we are still using it. It has expensive **limitations**, for example, the database doesn't identify suppliers or allow me to pilot trends, etc. It is just an online ledger. (#7).

**Time delays** – 'it took four weeks to get the domain name registered – too long' (#2). Several complained of the lack of time (#10, #22, #33, #32, #50).

SME #13 had 'just normal teething problems', yet there were a few that indicated they had no obstacles.

*Big Colour Pages* took care of everything – we had no complaints (#36).

We had to identify the most efficient easy to use and cost effective means of doing what we wanted, and then had to arrange to get it done. We had no one in-house who could do it, so we engaged a consultant – who was a client who does what we wanted (#48).

We did not know what to do, and it was a matter of serendipity. I spoke with someone else in the industry, and this person introduced me to a software package that I had not known about. He had been sent the information electronically from the ATO and I had not received it as at that stage I was not online (#7).

*[It seems odd that the ATO would send it out only electronically so that those who needed it to bring them online would not receive it and were not able to know about it – unless it was brought to their attention by another party.]*

When we established the system, we did a thorough planning initially, so there have been no real problems. However, what was state of the art then no longer meets our needs, so we are in the process of redesigning our system (#49).

Of all the disadvantages and hurdles they encountered, what were the greatest? Question 15 provided the answers to this question.

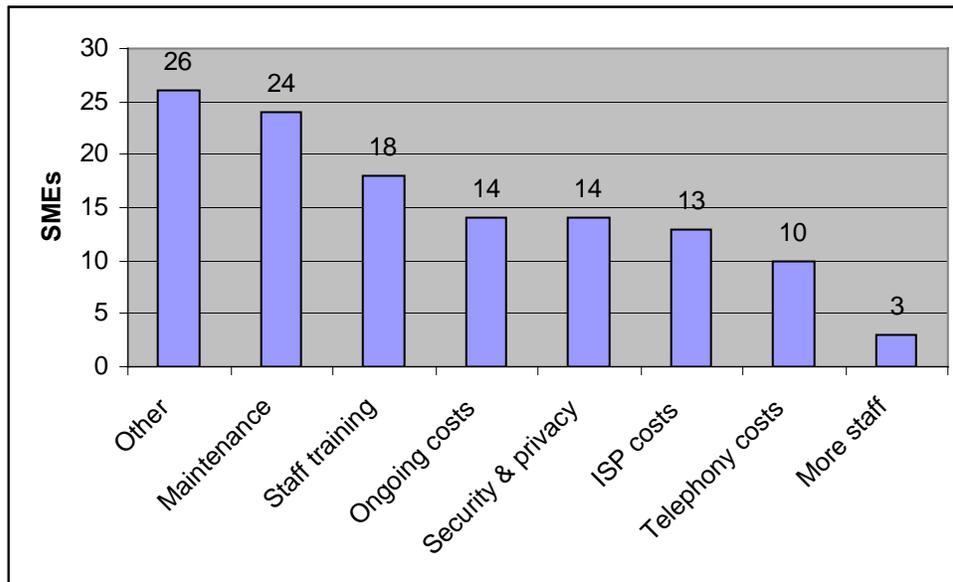
### 6.8.3 What disadvantages have you noticed?

As these SMEs had adopted e-commerce, they seemed almost unwilling to admit that they may have made a mistake in doing so. Thus, for the most part, they did not report many disadvantages from it. What could have been disadvantages initially were now accepted as a normal part of doing business.

IT costs are now a normal part of doing business. In a way, they are actually a benefit, as if were not incurring them we would not be able to gain many of the benefits they bring us (#43).

Fig. 6.8.4 illustrates the importance of different disadvantages experienced by those SMEs that had adopted e-commerce. For convenience, the various disadvantages are grouped.

**Fig. 6.8.4 Disadvantages from adopting e-commerce a-h**



**a. Need for continued maintenance of site and/or system**

The biggest disadvantage was that of having to upgrade the system and to provide ongoing maintenance (48%). It was almost as if they had not expected this. As one person said:

Something always seems to be going wrong - I guess that's the problem with computers. If anything can go wrong, it will (# 9).

A web-based design agency was having telecommunications difficulties when interviewed. Considering the long running saga of difficulties he had experienced, his criticisms were mild:

It is a bugger of a thing to keep working. Time is money. We have waited one and a half hours to get Telstra on the phone. If we can't provide a service to our clients, we have to refund them their money, but Telstra doesn't have the same policy (#23).

**b. Training needs of staff**

The constant need to keep training staff to be able to deal with changes and developments in technology and its use was nominated by 36% of all adopter SMEs as a disadvantage.

In the old days you could train your staff to suit your requirements, and know that was the end of it. Nowadays you have to keep on sending them on training courses (#16).

He went on to say that this cost his company in terms of time and money which were costs he would not have had to bear if he had not adopted.

**c. On-going costs**

Although 22% (from Question 10) had indicated that the cost of getting started had been a disincentive, once they had adopted, ongoing costs were nominated by just over one quarter (28%) as being a disadvantage. Others accepted that they were part of doing business, just different from those incurred prior to the adoption of e-commerce. That costs were associated with the e-commerce side of the business often meant that the costs had been transferred from a different area to this one. The transfer of cost centres was not

always obvious. For example, SME #17 spent at least \$100 a month on maintenance and servicing operations, but without it he would need to spend much more on advertising in the printed media.

Yet several others denied that costs – of virus protection, constant upgrading, routers, security devices – were merely a transfer of cost centres. New costs were now so much higher; there was an extra burden of costs.

One unexpected high cost was that of research and development (R&D). One SME that offers solutions in a number of different technologies invests 50% of their profit on R&D. The interviewee said he would like to see it higher, but is unable to convince his partners of the need.

When we do the scope and needs analysis, we look at the platform and software the company has in place, and build our solution to fit what they have (#49).

This was the only company that mentioned investing in R&D; others may have spent the money, but did not see it in relation to their e-commerce.

***d. Lack of security and privacy***

The number of adopter SMEs (28%) indicating that they found lack of security and privacy a disadvantage was the same as those who had concerns about these issues when initially considering adopting. Having adopted had not changed their view – or perhaps the present view coloured their perceptions of what they had believed prior to adopting. Others indicated that they had installed their own security and kept constantly upgrading them. Some had staff employed just for this purpose.

We have basic tools in place such as firewalls and passwords for keeping files secure (#44).

Another SME, (#37), subject to government regulations for security and privacy issues, out-sourced hosting of its web site to a company that specialised in guaranteeing security on its sites. Others stressed the need to have a secure web site, without feeling exposed to possible security attacks.

One, unaware of the existence of virus protection, firewalls, routers to hide internal ports, and other security devices, said he was concerned about the data that is kept on the computer being attacked by outsiders, but did not know what to do about his concern (#47).

*e. Internet Service Provider costs*

ISP costs were considered a disadvantage by only 10% of the adopter SMEs. Most saw these (and telephony costs) as a normal part of doing business of going online. There were, however, quite a lot of complaints against ISPs. The unreliability of ISPs was a common cause of complaint. SMEs felt that ISPs were not at all helpful when there were difficulties. SMEs often needed training or help once they had selected an ISP (or even before), but this help was rarely forthcoming. Nor were the ISPs completely honest or transparent about the various options available in the different plans. One SME (#2) said had he known, it would have been far more cost efficient for him to have selected a plan with unlimited access instead of the one that was promoted to him, but he was locked in and found it difficult and expensive to change. Several others had such unsatisfactory experiences with ISPs that they were forced to seek others. One person indicated he was on his fourth ISP since he had started (#44). Others said they were initially concerned about the high costs associated with ISPs, but found that these were offset by improvements and cost benefits gained.

Internet costs have gone up about 60%, but the benefits are significantly greater (#46).

*f. Telephony costs*

Only 10% considered increased telephony costs as a result of going online to be a disadvantage. One SME did complain of the increased costs of being forced to use mobile phones – which were much dearer than landline phones – to keep in touch with workers out in the field (#18). This, of course, had little to do with adopting e-commerce, but more with developments in telecommunications technology.

*g. Additional staff needed to service increased sales*

Although three SMEs indicated that they had been forced to hire more staff, they saw this as a disadvantage, not as an advantage. The interviewer suggested that the need to hire more staff may have been to deal with increased sales. One ironic comment was:

I wish! (#38).

None of the adopter SMEs indicated that they had yet reached that stage. Reasons for hiring additional staff were usually associated with other e-commerce matters such as to train other staff members, or to maintain the system, or to deal with government requirements such as BAS or compliance with regulations.

*h. Anything else?*

Just on half (52%) of the adopter SMEs voiced other disadvantages they had from adopting e-commerce. Some of these were minor, and some were expressed by only one or two persons.

The web site proved both a benefit and a disadvantage for several, but SME #44 expressed the view given by several:

Compared with the cost of preparing print material, the web site saves us money as it can be kept current by being updated on the fly. At the same time this is a disadvantage as it is difficult to get content for it to keep it current and to do it quickly enough. It is often not a top priority. Also staff lack skill and knowledge to do it. If it is not done, it loses currency - which is a severe disadvantage from a business point of view. Now that we use a database, updating it is dynamic (#44).

One pointed out that it was difficult to quantify the **return on investment** compared with radio or TV advertising where he could readily calculate the return (#31).

One difficulty arose from staff changes in other organisations. When people move from an organisation, they sometimes take their identification with them, or it gets mislaid, or no one else seems to have it. This causes problems of **authentication of user names and passwords** for SMEs dealing with them (#17). When a staff member left their own firm, the firm had to make sure that all passwords and access to secure sites were changed – a

time consuming exercise, but one for which they had as yet been unable to find an alternative solution (#48).

One (#30), who uses a lot of part-time and casual staff, complained about what he called ‘the irresponsible **attitude of his bank**’. The bank had set up his system so that when his accountant had completed details of who had to be paid what, he merely had to make the necessary connections, and it would all happen automatically. When he was unable to complete the connection to the bank one pay day, the accountant acted on the bank’s (verbal) instructions to fax them details and the bank made the payment. A day or two later, when the system came online, the connection completed the interrupted transaction of the previous attempt, and the bank automatically paid all the employees again. All of the casual and part time employees were paid a second time. Much to SME #30’s disgust, the bank refused to help correct the error. The accountant personally had to contact each employee to amend the problem. Yet not all bank stories were bad. (See second last paragraph of this section.)

Another liked online banking as:

It is more secure than having me or my staff going to the bank and returning with large sums of cash (#39).

One said that his **suppliers** were reluctant to give their bank details, which means they are forced to pay a couple of hundred by cheque with only about 12 accepting online payments. This same SME was constrained by transaction limits imposed by his two banks:

We would like to make greater use of online banking facilities... Electronic banking has some other limitations, for example, Westpac and St George have a daily limit of \$25,000 per account which means I have to stagger payments to suppliers. This means that we have to keep the old technology, but it is being addressed (#46).

Slow access or lack of **broadband access** was mentioned as a disadvantage by half a dozen SMEs. One wanted to move to ADSL, but for some incomprehensible reason, was unable to do so. He had lots of problems brought on by non-ADSL connectivity. He uses a variety of connections – 56 bits per second (bps) dial-up modem, fax, on-demand connections for banking and open connections for staff (#42). Several others indicated

that they were considering upgrading to ADSL to cope as business needs had now changed. However, they wanted broadband access at a reasonable cost.

We need TransACT (#1).

A couple of the adopter SMEs felt that their **business could expand** if more of their potential customers had online access to be able to view their web site and to communicate with email.

One complained about the **amount of paperwork**, and the need to keep paper copies of what was held on his computer. (It seemed as if this came from his lack of trust in the reliability of computer storage and back-ups.) It was as if computers brought with them a whole range of different needs that had not been considered with manual systems – even something as mundane as the need to keep on hand stocks of computer supplies. There was also the need to have to rely on an outside technician to attend to what may have been minor difficulties with the systems and hardware. Several mentioned the difficulty of managing for unforeseen costs.

#### **6.8.4 What has been the greatest disadvantage?**

As these responses were open-ended, responses should be treated seriously as they reflect current concerns of those interviewed. When asked what had been their greatest disadvantage, seven adopter SMEs said that they had none really, although there had been lots of obstacles, ranging from staff culture, management being reluctant to change and let go of traditional means of doing things, and a general lack of understanding within the organisation of what they were trying to achieve. Apart from these half dozen, all other adopter SMEs named specific disadvantages.

**Cost and reliability** were high on the list of major disadvantages named for almost one third. As a number of them said, all of their information is on computers, and when the system goes down, they are unable to do anything. When the system was giving problems, they had to spend time on it when they should have been doing other things. Lack of time was mentioned repeatedly. Down time costs them in time, lost productivity,

and contact with clients and money. When they cannot use the system they lose money as time is money. They suffered great frustrations with IT problems.

The service was down for two days – it cost us enormously in lost business as well as in lost confidence of clients. We rely on it heavily. Solution is to have safeguards in place and to have alternatives (#44).

One partial solution this firm used was to send a fax to all their major clients warning them the computer system was down.

The cost related to taking the time to learn and of ongoing training was named by another six SMEs. The cost of constant training had to be included in the budget. They found budgeting was more difficult with e-commerce as not only did they have to include ongoing training costs, maintenance overheads, and to allow for upgrading of the system, but there were also unforeseen costs. Several who admitted they were not computer-literate resented having to employ outside help when they had IT problems.

**Unreliability of telecommunications service** also was a related cost factor for six SMEs and another source of great frustration. SMEs felt they had to pay too much for a service that should have been reliable, but was not. There is a loss of time when they cannot make the necessary connections, and telecommunications provider staff were often unable to help with the problem.

Telstra is helpful, but their customer services staff lack product knowledge (#26).

The lack of reliability of **ISPs and web site developers** also came under criticism by another 12 SMEs. ISPs seem to have been part of the dot.com collapse, as quite a number of them 'went broke'. The transition from one ISP to another often caused considerable loss of business for SMEs. Related to this was their lack of support generally, the cost, the lack of transparency with contracts, and the language they used. The language used led to misunderstandings over the meaning of what was contained in contracts – such as the level of charging made when SMEs used more than the maximum allowed in their contract. Cost of telecommunications providers and ISPs was a related concern, with SMEs criticising the monthly costs and expensive set-up costs. ISPs proved difficult for many SMEs. Considering the high costs they were asked to pay, SMEs felt that they were not receiving value for money.

With online business, people have **higher expectations** (five SMEs). Clients expect immediate service, often about some product or information they may have seen somewhere on the web which may be promotional or not verified in any way.

A lot of online information is anecdotal or an individual's testimonials. This causes us lots of problems as we have no idea of how credible such information is. Yet people expect us to be informed about it, and to be able to supply it (#8).

Customers also expect their emails to be responded to immediately, and get upset if they are not. The situation can in reverse apply to suppliers.

They often have lots of flashy graphics and look fancy, but don't provide even basic services. Email addresses are often not kept up-to-date, and they don't always reply promptly. I sent five emails to one company, but received no reply, so dropped them (#34).

Lack of **security and privacy** eroding trust with customers was nominated as the greatest disadvantage by three SMEs.

Only one SMEs named each of the following disadvantages as being the greatest to his company:

- The monopoly held by ISPs and by Microsoft of products (#42);
- The [virtual] duopoly held by Telstra and Optus that keeps broadband costs high (#5);
- The viruses that come on emails (#12);
- Junk mail and frivolous questions (#24);
- That not everyone has access to the internet. A photographer had many clients who do not even own a computer, so it restricted her potential clientele (#10);
- One wryly admitted that their biggest disadvantage was:

The competition is doing it better (#32).

These comments suggest that providers of ICTs (computers, software, systems and telecommunication infrastructure) all need to work on improving the reliability of their products. Businesses depend on ICTs to operate. They provide a captive market for ICT

providers who appear to be little concerned about improving the reliability of their products.

Further implications for ISP and telecommunications staff are twofold – to make sure they can speak understandable English to clients (not jargon), and to make sure that their staff are knowledgeable about the products they are servicing so that they can readily resolve client's problems. They could follow the example of the bank used by #20. This SME pointed out that his bank (the NAB) was 'unbelievable in its support'. It logged all his queries so that when he called back a second, third or even more time, the staff member who answered would have the history of his problem to refer to so could assist more readily. He did not have to waste time by re-telling the story to a different staff member each time he called.

In light of their experiences in deciding to adopt e-commerce, assessing the potential benefits likely to be achieved, facing disadvantages and inhibitors, these adopter SMEs were in a great position to reconsider how they could change things if they were able to start over again, knowing then what they know now. They also are in a better position to offer advice to other SMEs considering adoption. Their responses are discussed in Chapter Seven.

## **6.9 Characteristics of the firm**

Under the demand aspect of innovation adoption model, characteristics of the business can be indicators that suggest adoption will proceed successfully.

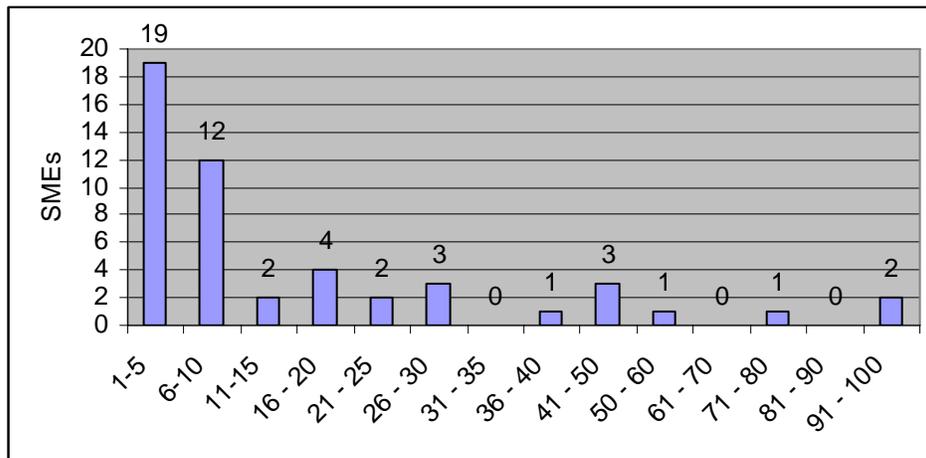
### **6.9.1 Size of the firm**

The matter of firm size seems to be rather a contradictory factor. OECD (1998a: 13) found that there is a positive correlation between adoption and firm size. Yet, according to Brown (1981: 160) and Poon and Swatman (1998b) small firms are more likely to have the qualities that lead to adoption of innovation than large firms as they are anxious to grow and increase their industry share. However, the resulting propensity by small firms is constrained and mitigated by their lesser ability to provide the resources needed and to absorb the cost and risk aspects of adoption. However, firm size seems to vary as a

significant factor according to different technologies. A number of researchers looking at the adoption of ICT-related technologies (Lai 1992; Pearce 1998; Raisinghani 1997; Warren 1998) have found that small firms are more likely than larger firms to adopt such innovations. Hence it was anticipated that the size of a firm would be a factor positively affecting the rate of adoption of e-commerce, and ICT-related innovation.

SMEs in this study were measured for size by the number of employees they employed. They were not asked about their turnover or capital investment as it was felt that these questions were intrusive.

**Fig. 6.9.1** Number of FTEs employed in the business



*Please note change of scale from 41 onwards.*

As can be seen from Fig. 6.9.1, 38% of SMEs were micro-business (that is, with five or fewer than five employees), with 19 SMEs fitting into this category. However, only two of the businesses were one-person businesses, with four having only two people in them. It was expected that these two-person businesses would be husband and wife teams, but they were not. They were either owned by one person with an employee, or were operated by two partners. A substantial 74% of the SMEs that had adopted were in the

micro or small category, supporting the findings of those researchers that reported small firms were more likely to adopt ICT-related innovations.

The mode of workers employed by the SMEs that have adopted e-commerce was 12, while the average number of workers was 18.7, but when the number of FTE casuals was included, the average rose to 19½ workers.

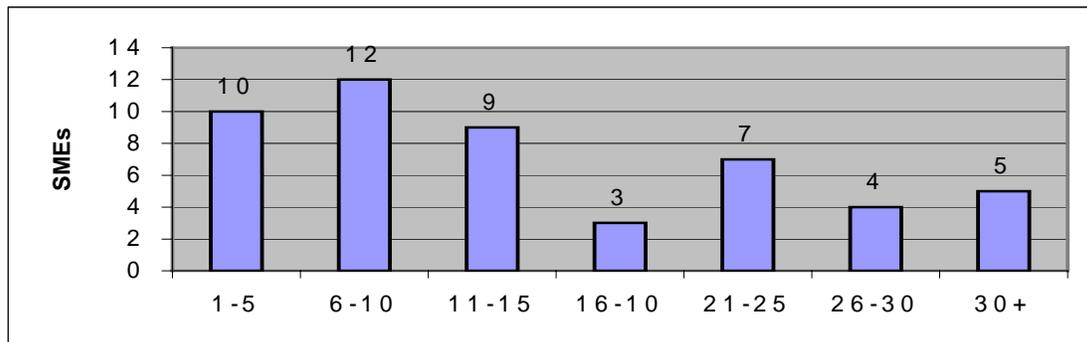
In addition to the number of FTEs employed by the SMEs interviewed – a total of 901 – these adopter SMEs also employed another 74 casual and part-time staff. This means that the 50 SMEs who had adopted e-commerce provided direct employment for approximately one thousand people, making a significant contribution to the economy of the ACT.

Of course, the total number of people employed indirectly is much higher, as the SMEs interviewed also employed many contractors – 33 plus ‘lots’ in number. The company that indicated they employed ‘lots’ of contractors would not even ‘guesstimate’ the number, saying it could be 40 or 60. Without checking their records, they could not give any estimate. This company was one of the two that had 99 employees. Some of the contractors employed more than one person. The number of contractors cited indicates only the total number of individual contracting business engaged, not the number of staff each contractor employed. Some of the contractors worked only for the SMEs; that is, they were contracted full time to the one SME. In some instances, these contractors had been one-time employees of the SMEs but had been encouraged to go into business on their own. Other contractors worked part-time for SMEs, but on a regular basis. A few were contracted on a casual basis.

As these 50 SMEs are representative of the total number of SMEs in the ACT, it can be readily seen that SMEs that had adopted e-commerce make a significant contribution to the employment economy of the Territory. On their own, these 50 make a sizeable contribution to the economy.

### **6.9.2 Number of years in business**

Fig. 6.9.2 shows the number of years that the adopter SMEs have been in business.

**Fig. 6.9.2** Number of years adopter SMEs had been in business

Ten SMEs (20%) had been in business for 5 years or fewer, with only one having been in business for just on one year. Fifty four per cent of SMEs had been in business for less than 10 years, with 10% of SMEs being in business for more than 30 years. On the average, adopter SMEs had been in business for a relatively short time – 10.7 years.

### 6.9.3 Age level of owners/managers

The majority of the adopter SMEs were aged below 55 years, with 40% of them aged between 25-35 years. Only 20% were in the 56-65 age group, with two of them over 65. These figures are similar to ABS which reported that of all SME owners (not specifically those that had adopted e-commerce) 10% were less than 30 years, 64% in the 30-50 age group, 26% over 50 years and 2% over 65 (ABS 1999a: 5). (Note that ABS uses broader categories of ages than the researcher did in this study.) Not one was under 25, although one man said he had been only 26 when he had bought the business some eight years previously. This is in line with the ABS which reported that the number of SME owners aged under 30 years was declining. The post-65 age level had not been included in the original interview, but these two were among the early SMEs interviewed, and each asked that their age be recognised. One of them was upgrading his business with the intention of selling it shortly, and desirous of gaining a good price for it. The other was what Drucker (1985: 196) calls ‘a second career entrepreneur’ who had bought the business as something to do after he retired from a career in a different field. He had rapidly realised that he needed to introduce e-commerce facilities into the business if it

were to remain viable. If he had tried to continue with the manual systems that were in place, the business would have rapidly gone downhill.

Fig. 6.9.3 shows the age distribution of the owners/managers of the SMEs in this part of the study.

**Fig. 6.9.3 Age level of adopter SMEs**

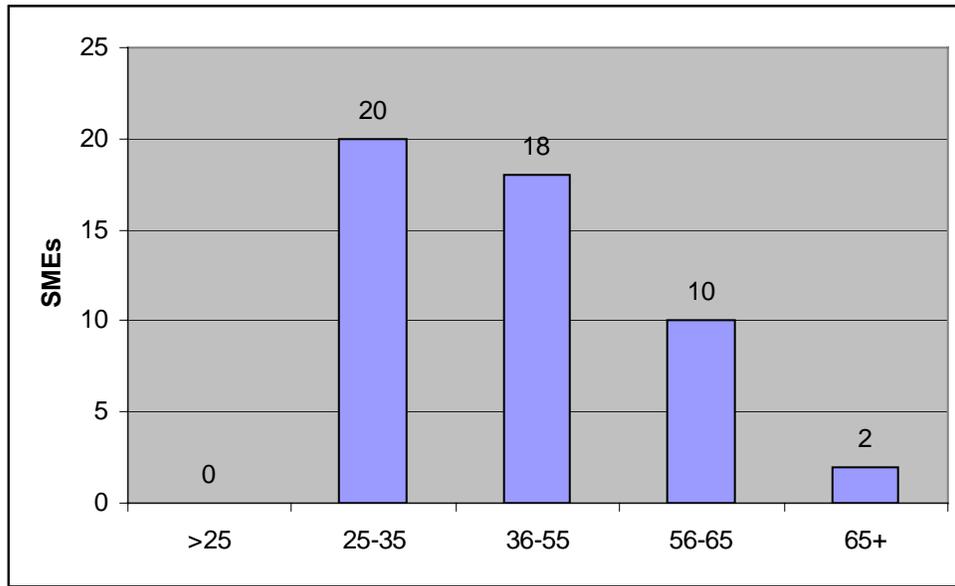
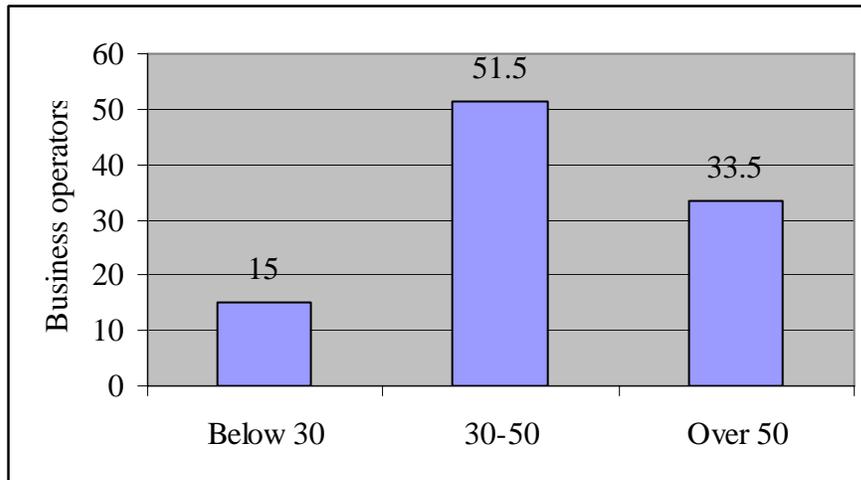


Fig. 6.9.4 shows comparative figures for business operators across Australia generally (ABS 2004b: 114). Note the low level of congruence between the Australian population in general, and that of those SMEs that had adopted e-commerce. Because of the different measurements, it was not possible to test the figures for significance.

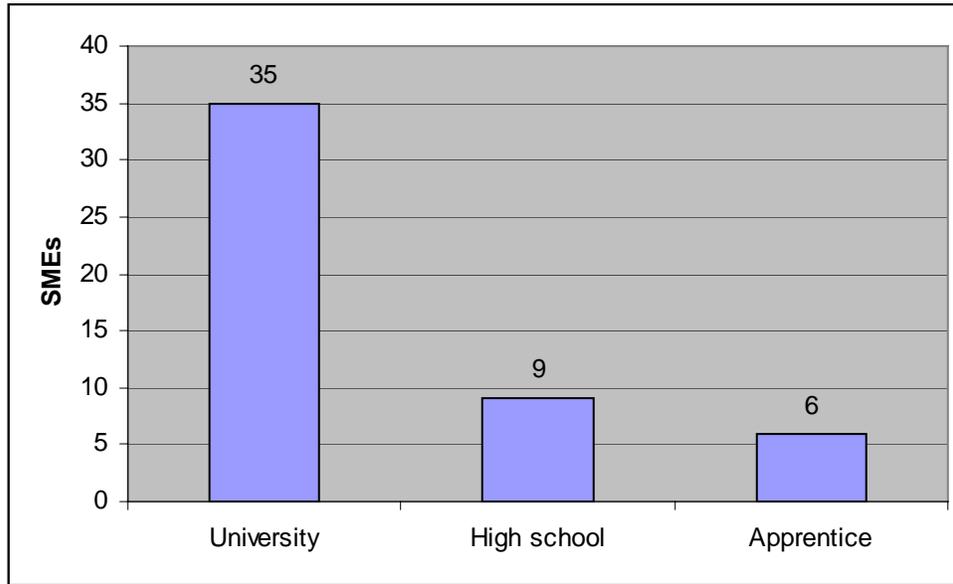
**Fig. 6.9.4 Age level of SME operators across Australia**

### **6.9.4 Educational level of owners/managers**

Age of SMEs tends to reflect the level of education gained. Older people were, on the whole, less well educated than those in the younger age group, perhaps indicating the change in government policy over the decades which made it more affordable for people who were not financially well off to gain a degree. This change has been somewhat reversed in the last decade. Perhaps this helps to explain why there was not one entrepreneur younger than 25 years. Yet, SMEs who had adopted were, for the most part, highly educated – a trend at variance with the rest of Australia. In establishing the lack of managerial skill and knowledge as a factor in small business failure, Peacock found that only 39% of small business operators had gone beyond high school in their level of education, and, of these, only 25% had gained tertiary qualifications (2000: 12-13). ABS (1999a: 27) reported slightly higher figures but still only 27% of owner/operators had a university qualification, 36% a basic skilled or vocational qualification, while 4% had completed their education at the secondary school level. [Note that the ABS figures do not total 100%. When the researcher checked with the ABS over this discrepancy, she was told that it ‘appeared that some of the respondents had not completed their qualifications correctly, or that the level of skill was below the ABS level three’, so the implication was that missing figures ought to have been added to the 36%.] In this study respective figures are 70%, 18%, and 12%.

Fig. 6.9.4 shows the highest educational level achieved by the owners/managers of the SMEs in this part of the study.

**Fig. 6.9.5 Highest educational level gained by SMEs who have adopted**



There was a close correlation between having a university degree and the age groups of 25-50 years. This could be partly explained by the fact that the ACT has the highest level of university graduates in Australia, but it is perhaps also a reflection of government policies which made it easier for people in that age group to gain degrees. It was apparent from the interviews that quite a number of SME operators held degrees in fields that were not directly applicable to the field in which they were working. (Interviewees had been asked to name the degree or apprenticeship they had gained.) For instance, one SME owner with a degree in aerospace engineering is now running a luxury car retail sales business. A husband and wife team both with science degrees are running a restaurant.

The few of those in the 50-65 age group with university degrees tended to be professionals such as a podiatrist or an architect.

Only 3 persons in the 51-65 age group had a university degree, and, as noted, neither of those over 65 years of age had one.

## 6.10 In summary

This part of the study looked at those 50 SMEs that had adopted e-commerce. It investigated what elements of e-commerce they had adopted, the benefits they achieved, and disincentives they faced. Although not all experiences were positive, no SME considered giving up. With the benefits of hindsight, they all saw that there may have been a better way to have done some things, but the benefits of what they were doing far out-weighed the disadvantages. Although there were still challenges to be faced and overcome, they recognised that development was a continual and incremental process, with new enhanced procedures to be incorporated as the functions and facilities became available. This is what Rogers (1985) calls 'trialability' or 'continuity' of an innovation. Very few had estimated a return on investment before adoption, and instead found that the cost of engaging in online business resulted in high on-going costs on which there was as yet little positive financial return. The return was usually in other non-measurable terms.

Findings are summarised briefly below.

All SMEs in the sample used email, seeing it as absolutely essential to their business. Two thirds of SMEs used a web site, while searching the internet for a variety of information - product, reference and government information - was also high in order of use, being used by just over 80% of all in the sample. SMEs were, for the most part, seemingly reluctant to allow customers to place orders online (32%) or to allow them to pay online for orders (30%). While almost 60% communicated with suppliers online, only 46% actually placed orders online, but 74% paid business accounts (including employees' wages) online. These figures are higher than the national average – possibly reflecting the higher computer literacy in the ACT generally. Although EDI was acknowledged as being used by only 12% of SMEs, this figure is probably under-represented as EDI use (as by banks or the ATO) is often hidden.

Use of e-commerce was fairly basic for most of the SMEs. Very few, if any, used a full system that integrated all procedures such as stock control with online ordering. Despite

this, almost half to the interviewees (44%) had automated some e-commerce functions that led to time savings and increased business efficiencies.

Although 68% of the SMEs had a web site, there was no consistent way in which they used it. Of those that had no web site, three were planning on having one some time in the future, while two real estate agents had no web site of their own, preferring to use the independent AllHomes site. The remainder did not feel they had a need for one or that it did not suit their product. Some SMEs relied solely on word-of-mouth recommendations for new business.

Senior management supported the adoption of e-commerce, with 84% of owners initiating and taking responsibility for the process. With this high level support, the adoption should succeed if innovation theory is correct.

Despite the wide promotion of e-commerce by many different organisations, SMEs generally learned about it through normal publicity channels (70%), not through specialised channels such as specific seminars. One third of them (34%) had completed some IT study which provided them with the technical knowledge they felt they needed to adopt.

When it came to deciding what steps they needed to take first, 40% looked for information – on the internet, or by asking people near to them (relatives and friends) or going to business acquaintances and to other similar companies. Only one went to the government information and support centre. The 32% with an IT background ‘just got on with the job as they knew what to do’. The IT background of this 32% plus another 16% that became computer-literate so they could do what was required certainly provided the technical knowledge, but only four SMEs incorporated whole-of-business planning strategies into their adoption process. Most SMEs initially saw it as a technological issue rather than as a business strategy issue. This often caused problems within the company at a later date when other sections of the organisation found that the procedures in place did not enhance or sometimes even enable business goals and objectives. Realising their own lack of knowledge and inadequacies, and hoping to have it ‘done correctly’, another 22% employed outside consultants to do what was needed.

Innovation theory says that an innovation is more likely to be successful if it can be adopted incrementally. E-commerce proved to be such an innovation. Two thirds of SMEs in this section of the study began with email. The second function that was incorporated into 42% of the business was to have a company web site, followed by a range of other functions. Aiming for the international market, one SME registered a domain name three years before he was ready to adopt e-commerce. A complete system was installed by 20% in the beginning, with most of the outside contracted consultants electing this means. Continued and on-going up-grading was seen as necessary future actions by most of those who used e-commerce extensively and successfully. For instance, several of them plan to incorporate enhanced functions such as an online shopping cart, and electronic order and payment facilities into their online catalogue.

SMEs were asked about the triggers that pushed them into adopting. It had been expected that if they understood potential benefits could be obtained than these benefits would have been instrumental in their decision to adopt. This, however, was not the case. The availability of seminars was the highest trigger, but was a trigger for only 12% in this sample. Seminars after hours, seminars being cheap or even free, being able to get time off from the business, being subsidised (for equipment, training, installing the infrastructure needed, or of establishing the e-business side of things) were of no consideration at all. The availability of help, however, *was* a consideration. The availability of outside help (46%), cheap or even free help (24%), on-going training (14%), and that the training was cheap or even free (12%) were factors. Only 2 SMEs felt that the law guaranteed protection of online transactions, yet 26% felt comfortable with the safety of business transactions. Being able to locate a suitable business model was a factor for 26%. Although very few had broadband access, 30% said they had 'fast access' which obviously served their purposes. This usually reflected a lack of knowledge of what broadband would enable them to accomplish. The availability of GRPS was not a consideration for even one SME. Most (92%) indicated that there were other factors that triggered their adoption – such as the need to remain competitive – or that they just knew it was the way of the future.

When identifying the disincentives that held them back from adopting, the major factor SMEs noted appeared to be lack of time – lack of time to find out about it, to learn how it

operates, and to arrange the training and purchase of the necessary equipment, while still meeting all the other demands of their business. These results are in keeping with other research studies. Disincentives were identified as: not knowing what was required (26%), lacking time to find out what was required (30%), too much else to do (30%), not properly prepared to adopt (10%), and needing to provide on-going training to keep up-to-date (10%). Not surprisingly, as this sample was of those SMEs that had already adopted, only two planned to 'wait and see' before adopting. Although these were disincentives, they did not stop SMEs from making the adoption. Cost, security and privacy issues were considerations, but of even lesser importance than the time issues. Disincentives can be summarised as: it cost too much to get started (22%); there was insufficient return on investment (22%); there was concern for security of customers (14%); it was difficult to guarantee privacy of customers (8%); there was the possibility of hackers (16%); and there was lack of security that contracts would be honoured in other jurisdictions (2%). Nor were technological issues a major disincentive to adoption. These can be summarised as: difficulty in locating a suitable business model (8%), slow access to the internet (14%), waiting until broadband facilities were available (6%), too impersonal (2%), customers did not want it (4%), did not suit my type of business (4%), did not see it as a real distribution channel (8%), and lack of vision of managers (4%). Although these were all disincentives, they did not prove real deterrents. SMEs adopted e-commerce in spite of their concerns about these issues. In other words, SMEs in this sample were innovators and early adopters who understood what e-commerce could do for their businesses so they went ahead with the adoption.

When asked about the potential benefits that could be gained from adopting e-commerce, SMEs were more expansive. Their responses mirrored the findings of other researchers. They agreed there was a competitive advantage, it could save the business money, it could reduce transactions cost, it could be a more efficient way for customers to pay accounts, and it could expand the geographical coverage of my customer base. It could also reduce the number of staff needed as many processes could be done automatically, it could enable the business to by-pass the middleman, and it could make it possible to deliver goods more quickly. The company could tailor services to specific sections of the market, it could be a more efficient way to pay invoices from suppliers, it could reduce

the need to hold large quantities of inventory, and it could be an important way to exchange information with customers, staff, and suppliers.

When looking at the benefits they had already achieved, SMEs could see that they had gained many from adopting e-commerce. Time savings (because processes had been automated), increased sales, reduced production costs, improved business efficiencies, improved communication (with clients or staff or suppliers), improved staff efficiencies (such as fewer staff or the same staff being able to do more), better cash management, online banking or other financial operations, and savings in procurement had all been achieved.

Not surprisingly, 88% of all SMEs in this sample saw themselves as entrepreneurs, people who innovate. They seek out opportunities and are prepared to take risks. Each of these 88% was able to give at least one – and often more – example of innovations they had introduced into their business prior to the adoption of e-commerce. The adoption of e-commerce had been merely another innovation that they could exploit as an opportunity.

For just over half (54%) individual clients formed the client base. Another 36% dealt with other SMEs, while 30% dealt with government. Suppliers formed the client base for only one SME in this sample. Large corporations (10%) and investors (14%) formed the other categories of client base. Numbers total more than 100% as some SMEs nominated more than one category, saying their client base was fairly evenly spread between two or even three categories. Client base seemed to be unimportant as a factor in the adoption of e-commerce for SMEs.

The majority of the SMEs were young in years of operation. Just over half (54%) of the businesses had been operating for less than ten years, with 20% of them operating for less than five years. Only 10% had been operating for more than 30 years. They averaged 13.8 years in business overall.

SMEs in this sample supported the ABS contention that SMEs make a significant contribution to the employment base of the Australian economy. The 50 SMEs in this sample employed a total of 901 workers, averaging 18 per business. When casual staff were also included, the average number of workers employed by each SME rose to 19.5.

In addition to this direct workforce, these SMEs employed another 74 plus 'lots' contractors, each of whom had their own workforce. On their own these 50 SMEs make a sizeable contribution to the ACT (and Australian) economy. As these SMEs are representative of the total number of SMEs in the ACT, it can be extrapolated that adopter SMEs generally are extremely important to the economy.

The age distribution of the SMEs in this sample formed a normal curve, with none below the age of 25 years, and only two over the age of 65. Of the older two one was what Drucker calls a second career entrepreneur, while the other had chosen to keep his business up-to-date so he could sell it advantageously when he retired shortly. Nor were there any SMEs with owners or managers under 25 years of age. It had been anticipated that some of the SMEs would have been started by people in this age group, but if they had been, none of them now was under that age.

The ACT has the highest rate in Australia of people with university degrees, and this was reflected in this section of the study. Only 18% had completed their education at high school, another 12% had an apprenticeship, while 70% had completed a university degree. Of this 70% quite a few were working in areas different from those in which they had obtained their degrees. It appeared that having a degree gave them the flexibility and adaptability to learn in other areas.

When SMEs were asked the two questions - if they were to start over again, what would they change, and what advice would they offer to others contemplating the adoption of e-commerce - they gave responses that were considered in light of their own experience. Responses to these two questions form the basis of the recommendations in the final chapter.

On the whole, responses from the 50 adopter SMEs in this part of the study showed a high degree of entrepreneurship and a readiness to adopt innovation. To them e-commerce was just another innovation. The next chapter compares these results with those from the 25 non-adopters of e-commerce discussed in the previous chapter. It uses these results to test the validity of the research questions, and then looks at the research propositions that formed the focus of this research.

## **Chapter Seven Analysis of results**

## 7.1 Introduction

Responses to the interviews with the non-adopters of e-commerce and with the adopters of e-commerce were analysed in Chapters Five and Six respectively. Those results are compared in this chapter against the research propositions. They are used first to consider the two research questions and then the fit of the research propositions that arose from the factors of innovation adoption consistent with the demand aspect of the theory of adoption. For the convenience of the reader, these research questions and research propositions are repeated below:

What were the enabling factors and barriers that impacted upon SMEs in the ACT when they considered adopting e-commerce?

*and*

Once SMEs had adopted e-commerce, what were the issues that impinged upon them in their continuing operations?

**Fig. 7.1.1 Research propositions arising from demand model**

<p><b>A. Characteristics of the firm and its decision-makers</b></p> <p>1. SMEs adopt e-commerce when size of the organisation, number of years of operation, industry in which they are engaged, and entrepreneurial nature of decision-makers fit the demand aspect of innovation adoption.</p>
<p><b>B. Resource implications</b></p>
<p><i>Time</i></p> <p>2. SMEs adopt e-commerce when decision-makers within the organisation have the incentive to make the <i>time</i> to find out what is involved in the process.</p>
<p><i>Personnel</i></p> <p>3. SMEs adopt e-commerce when they are able to provide staff and on-going staff training.</p>
<p><i>Financial</i></p> <p>4. SMEs adopt e-commerce when the cost (of equipment and infrastructure, training, maintenance and web site) is able to be borne by the organisation without loss of profitability.</p>
<p><i>Technology</i></p> <p>5. SMEs adopt e-commerce when broadband facilities (or other reliable and comparable telecommunications infrastructure) are available.</p>

**C. Return on investment or Cost benefit**

6. SMEs adopt e-commerce when decision-makers within the organisation believe the cost-benefit will be sufficient to justify the means or that they will gain a competitive advantage.

**D. Communication channels**

7. SMEs adopt e-commerce when decision-makers within the organisation maintain professional links outside the organisation (such as with a Chamber of Business) which facilitate their role as opinion leaders within their industry.
8. SMEs adopt e-commerce when there is some external influence that encourages them to do so, such as when their clients want it, or when trade and/or professional organisations push for it for other reasons such as stock control or ordering of supplies.

**E. Government initiatives**

9. SMEs adopt e-commerce as a result of government initiatives such as provision of information sources, seminars and workshops.

**F. Other issues**

*Security issues*

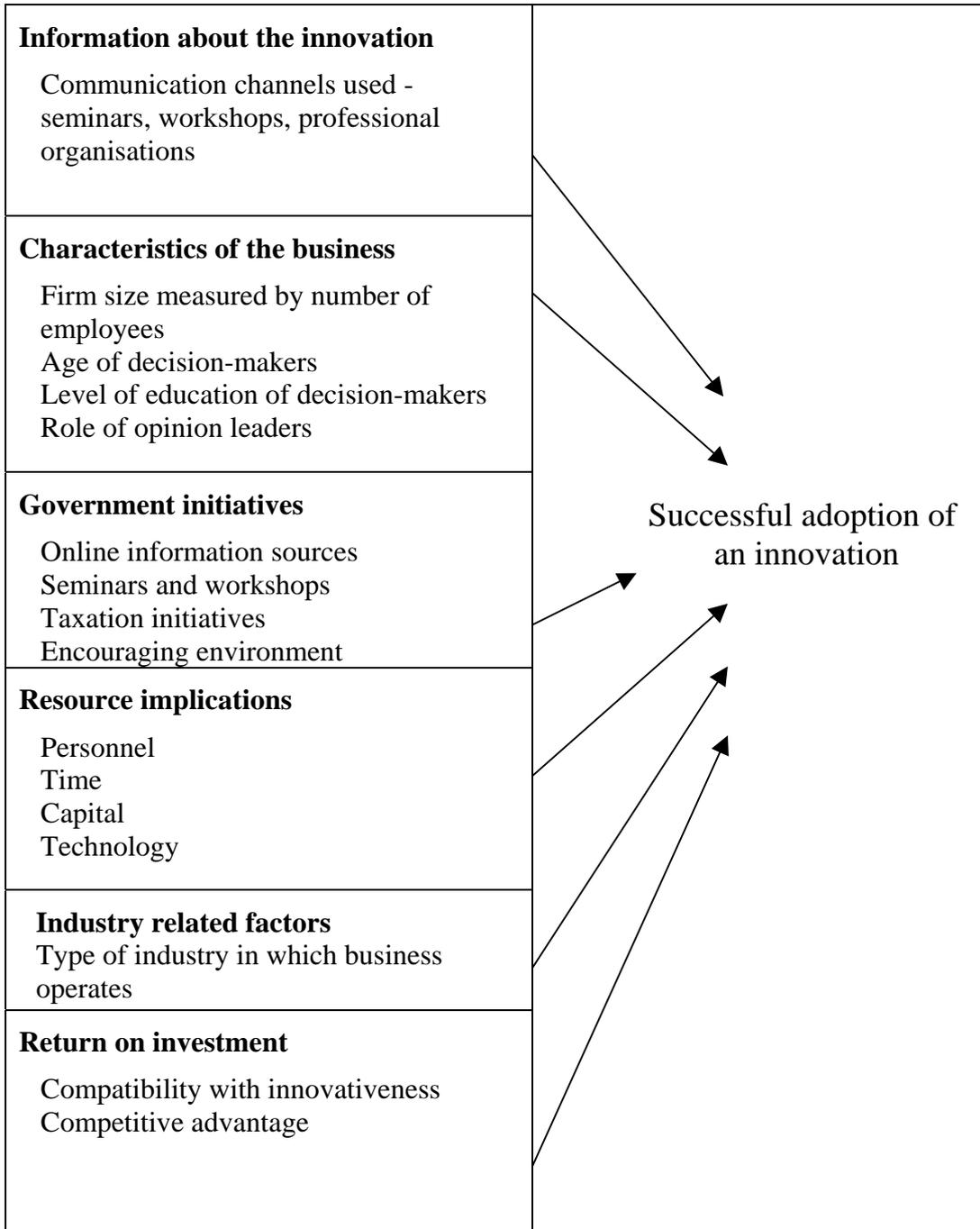
10. SMEs adopt e-commerce when security can be assured to customers and to the organisation, not only in ordering and paying for transactions, but also in keeping records safe from outside interference.

*Marketing issues*

11. SMEs adopt e-commerce when they believe their products can be sold across the internet.

From the literature it has been possible to identify the factors that affect or impinge upon the demand aspect of innovation. These factors were summarised in *Chapter Three Adoption of innovation Fig. 3.5.1 Factors impinging upon the demand aspect of innovation adoption* (and are repeated here for the convenience of the reader as Fig. 7.1.2). Results of this research show that apart from characteristics of the business, these factors were of little significance in explaining the adoption of e-commerce by SMEs in this study. Factors that did prove to be of significance are summarised in Fig. 7.6.1, and will be discussed in *Chapter Eight Section 8.4 Contribution to the theory*.

**Fig. 7.1.2 Factors impinging upon the demand aspect of innovation adoption**



In this chapter, each research question and research proposition is considered in turn according to the relevant findings from the adopter and non-adopter SMEs, and, for the convenience of the reader, is repeated immediately prior to the discussion. This chapter first reiterates justification for the use of innovation theory as the basis for the study, in particular, the demand aspect of that theory.

## **7.2 E-commerce as an innovation**

This study treated e-commerce as an innovation. Although it did not investigate the take up of e-commerce under the traditional theory of diffusion of innovations, the traditional characteristics of this theory did apply to the adoption or diffusion of e-commerce. For instance, e-commerce provided a relative advantage over the methods it superseded or supplemented, usually in terms of maintaining a competitive edge over competitors. It also gave the adopting SMEs social prestige, offered a more convenient means of carrying out many functions within the business (as, for example, in the way in which email improved communication with staff, suppliers and customers), and resulted in the SMEs making a greatly increased contribution to the economy of the country. Like other innovations e-commerce was adopted when there was a high degree of compatibility with existing values, past experiences and needs of potential adopters. This was particularly exemplified by decision-makers within SMEs having become computer-literate through their formal education or prior experience. This appeared to give them the confidence to approach use of the technology in a different way – in use of it in their business. This same experience meant they were able to view the use of the technology in their business and adopt elements of e-commerce as they viewed the innovation as having a low degree of complexity. E-commerce could also be adopted in modules. Staff could become familiar with one module before another, more complicated, was adopted. Thus there was a high degree of what Rogers (1995: 16) calls ‘trialability’. E-commerce offered a high degree of visibility to customers as well as to other potential adopters (Rogers and Shoemaker 1971: 23, 155; Brown 1981: 305; Rogers 1983: 231; Clayton 1997: 27). Thus, superficially, e-commerce fitted the traditional theory of innovation diffusion, and did not need to be further studied.

Continuity of an innovation also was not considered as part of this study of the theory of innovation adoption, but it can be accepted that the continuity of technological innovations such as e-commerce is on-going. Technological innovations never remain static. They are constantly under improvement, with new features constantly being made available for adoption, often at a reduced cost. This applies as much to e-commerce as to other technologies. For example, web sites were extremely expensive to develop initially, but now can be built quite cheaply. The first web sites originally merely provided basic information about the company. Then they were used to promote a company's products. This led to the use of online catalogues. Online ordering followed, with online payment, development of shopping carts, and the need for secure sites, linked to internal stock control. Such constant development leads to the need to continually upgrade and enhance processes. This continuity of development is an important feature of the adoption of technological innovations like e-commerce, but again, in this research, it is accepted as a given.

Despite e-commerce's fit with the traditional theory of innovation diffusion, this researcher did not wish to repeat what many other studies had done. She was more interested in investigating the issues surrounding the uptake of e-commerce by SMEs. This different focus fitted Brown's demand aspect of the theory of diffusion of innovation (Brown 1981: 5). It was anticipated that the demand aspect of the traditional theory of innovation diffusion would better explain the issues surrounding the adoption by SMEs of e-commerce. Results of the extent to which aspects of demand affect the adoption of e-commerce among SMEs in the ACT are further discussed in depth in the next sections of this Chapter.

## **7.3 Results of research questions**

### **7.3.1 First research question**

What were the enabling factors and barriers that impacted upon SMEs in the ACT when they considered adopting e-commerce?

The first research question corroborated the findings of other researchers who looked at the incentives and disincentives faced by SMEs when they considered adopting e-commerce. SMEs in this study agreed that incentives or enabling factors were considerable. This study found that the adoption of e-commerce:

- Produces significant cost savings;
- Provides a competitive advantage by being ahead in the market, a position which increased return on investment;
- Provides access to timely relevant information;
- Reduces the number of staff needed or releases them for other duties as many of the processes can be made automatic;
- Saves time in many areas – such as in placement of orders, in obtaining delivery, in communicating internally and externally, in making online payments, to name just a few;
- Improves communication with customers and within organisations;
- Provides immediacy of customer service - email allows and facilitates immediate response to customer queries;
- Improves customer service and customer relationships by increasing the efficiency of business processes;
- Improves differentiation and facilitates the targeting of specific sections of one's customer base, allowing a company to tailor its services and products to specific sections of its client base by building individual profiles for each customer so that they can target them with specific goods – what Roehm calls a personalisation of customer service (1999: 2067-2098);
- Facilitates sales direct to the end user, bypassing intermediaries;
- Reduces the need to hold large quantities of inventory, lowering the holding costs of goods; and
- Gives greater company exposure to potential markets and expands the geographical coverage of the business to global markets, thus broadening the customer base which leads to higher returns, and, ultimately, to higher profits.

No one factor seemed to be a major trigger to the adoption decision. Indeed, as Quayle found 'the gut feel driver clearly dominates and reinforces earlier concerns ... that real business cases for e-commerce implementation are rare' (2002: 1156).

Unlike other findings reported earlier (including Marshall and McKay 2001), SMEs in this study had not reached the stage where they could appreciate potential benefits from engaging in strategic alliances. Although they were willing (often seeing it as a necessity) to cooperate with trade, industry or professional associations and suppliers, they considered their business as an entity complete within itself, and did not wish to collaborate with external entities that could be their competitors. Perhaps as they expand their online activities, becoming more exposed to competitors, they will see that there could be advantages in becoming part of, for example, a larger online shopping mall. Or local regions – like the New Brunswick IT Alliance (1998) – could instigate the establishment of such alliances as a catalyst of increased wealth creation within the region.

When it came to looking at the barriers or disincentives to the adoption, SMEs in this study again supported the results from previous researchers. They were concerned about:

- Security issues. They felt customers were unwilling to carry out financial transactions over the internet and/or that financial transactions would not be secure. In some instances, SMEs themselves were unwilling to trust the security of online financial transaction.
- Legal issues. These were closely related to lack of security and privacy, but were of greater concern after SMEs had adopted e-commerce than when they were preparing to adopt. The literature had not shown the increase in distrust following adoption.
- Privacy issues. In close conjunction with the distrust of security was a corresponding concern about the lack of privacy for both customers and business themselves.
- Incompatibility of product. A large number (of the non-adopters) felt that their products or services were not suitable for online sales, what some researchers have

called 'not suited to my type of business' or a poor product match. There was a lack of awareness of the potential of e-commerce for their business - or what Kotwica (2001) called 'resistance to change'.

- Personal contact. They were concerned at the lack of personal contact, and took steps to offset this, by, for example, personalising email.
- Education and training. There was often a lack of knowledge of what was involved with a need for education and training to be on-going.
- Cost of resources. The cost of investment or limited company resources (including personnel expertise, technological and financial resources) deterred some but not all from embracing e-commerce. Most were surprised at the high continuing cost.

The literature indicated that the lack of infrastructure would be a deterrent (Auger and Gallagher 1997: 69; OECD 1997: 40-41). SMEs in this study were not deterred by the lack of infrastructure generally. For instance, TransACT's broadband cable was being rolled out to cover the whole of the ACT, and Telstra's ADSL services were also available. SMEs were slow to adopt either of these broadband services. It was not the availability of infrastructure that deterred SMEs, but rather the lack of reliability of associated services. The lack of reliability of telecommunications services, of ISPs, of other infrastructure providers all cost SMEs in this study dearly - in lost time, lost services, loss of business, and inconvenience to both the business and to their clients.

Nor did SMEs in this study use their customers' lack of readiness as a barrier to their own adoption. Indeed they saw their own needs as being greater than the readiness of their customers.

Issues that proved to be of concern but were not recorded in other literature are discussed in the following section that looks at the second research question.

### **7.3.2 Second research question**

Once SMEs had adopted e-commerce, what were the issues that impinged upon them in their continuing operations?

Unlike the first research question which evolved largely from the literature and was confirmed by the SMEs, issues arising in the second research question were more the results of responses from the SMEs interviewed, both in person and by telephone. During the interviews, respondents were encouraged to elaborate on any points that were of interest or of concern to them – even though the researcher did not immediately see any particular relevance to the study. They frequently became so expansive that much valuable information resulted from such general discussion. From analysis of their responses it was quite clear that there were a number of issues impinging on a large number of the SMEs. If only one SME mentioned an issue, it was obviously important to that SME, but when the same issue was repeatedly raised by others that issue was presumed to be of greater importance to the whole body of SMEs. Issues that impinged upon their continuing operations included the following:

- The high cost of compliance with government regulations, especially when employing workers which entailed what these SMEs called *extremely* high costs of compliance. This was such a significant cost that, as mentioned earlier in the analysis, many SMEs were no longer replacing staff when they left, but choosing instead to employ contractors who bore the costs themselves. This problem is not, of course, limited to those firms that adopt e-commerce. [While writing up this part of the thesis, the researcher became aware of a Senate report just presented to Parliament which highlighted industry concerns of this trend. One undesirable result of the trend is the decrease in the number of apprenticeships with a follow-on reduction in skilled tradespersons (Commonwealth of Australia 2002: 27-49).]
- Government regulations, again not limited to those that adopt e-commerce, form an issue that many SMEs complained of because of the multitudinous nature of them, and the difficulty of keeping up-to-date with on-going and constant changes to them. Trade, industry and professional associations appear to play an important role in keeping some industries up-to-date with changes to regulations. The Chamber of Industry played a similar role with some of the professional firms.
- Security issues were of little concern to SMEs prior to their adoption of e-commerce. SMEs were aware of them, but not deeply concerned about them. However, once they had begun trading online, they became more concerned about the need to keep transactions and client information secure. Two had experienced

severe losses as a result of security breaches. Only ICT-related firms seemed to be aware of steps that could be taken to protect themselves and their clients, but even these found there was a high cost and a need for constant vigilance to avoid ever-increasing sophistication of hackers. Despite government policy in this area, SMEs still did not feel protected by the legal situation.

- In common with Lawrence's study (1997), external consultants provided an unexpected area of concern to many. This included not only consultants engaged to build the system, but also ISPs, telecommunications and other technical consultants. The main issue with these was twofold - they failed to listen to the SMEs so that they failed to understand needs of the SMEs, and they used language that was virtually intelligible to SMEs. Associated with these issues were the contracts SMEs signed. Contracts were unclear, with penalty clauses written in such a way that SMEs were often shocked when they incurred penalties. Again technical language and lack of transparency were the main complaints.
- Reliability of infrastructure provided another unexpected source of concern. The infrastructure was available, but, despite all the rhetoric coming from government about improvements to it, it proved to be quite unreliable. If this is the case in the ACT, a large country city with a highly educated population, what must it be like in rural Australia? Despite the availability of broadband, most SMEs seemed ignorant of its potential for their business. Greater education in this area is needed if SMEs are to take full advantage of improved telecommunication facilities. A further problem of reliability was that not all ISPs could compete in a marketplace that had attracted many players, and large numbers went out of business, leaving SMEs without services (SETEL 2003b). They had again to go through the challenge of seeking an ISP that provided reliability of services and a contract that was easy to read with clear conditions.

That these issues arose from discussion with SMEs and were not in response to directed questions suggests that they are of great concern and need to be highlighted in future studies.

## **7.4 Results of research propositions**

This part of the chapter looks at the various research propositions. Research propositions immediately precede the discussion relating to that proposition.

### **7.4.1 Characteristics of the firm and its decision-makers**

SMEs adopt e-commerce when size of the organisation, number of years of operation, industry in which they are engaged, and entrepreneurial nature of decision-makers fit the demand aspect of innovation adoption.

A number of researchers (Drucker 1985; Parker 2000; Van Beveren and Thomson 2002) have pointed out that there are a number of characteristics of the firm that can affect the decision to adopt innovation. These are discussed below.

#### **7.4.1.1 Size of the firm**

Firm size is a paradox. According to ABS Year Book (2003: 754-753), practically all large corporations use e-commerce, but comparatively fewer smaller firms. Yet, Poon found that it was the smallest firms that adopted e-commerce.

In contrast to the suggestion of an earlier study on e-commerce and SMEs in Australia which concluded that micro-sized businesses were not likely to benefit from internet commerce, the findings from my PhD consistently proved that it was the smallest size firms which exploited internet commerce most actively and became the largest group of small firms online in all my samples (Poon 1998a: 374-375).

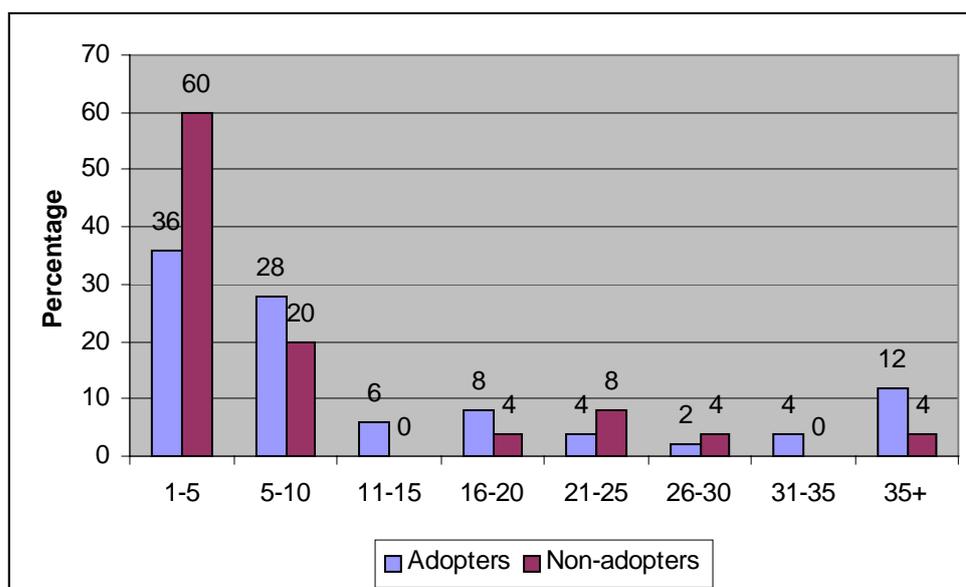
In general, although large firms have more resources that they can use to support the adoption of innovation, they are not the most ready adopters of innovation (Parker 2000: 241-242). Small firms seem to have the greater flexibility necessary to encourage an innovative culture. On the one hand small firms lack the resources necessary to adopt e-commerce so are less likely to adopt (Van Beveren and Thomson 2002: 252-253), yet on the other, they are more flexible. It was assumed in this study that those SMEs that adopted e-commerce would be the smaller ones.

As previously noted, SMEs in this study were measured for size by the number of employees they employed. They were not asked about their turnover or capital investment as it was felt that these questions were intrusive. On the whole the

adopters were larger in size (measured by number of employees with a mean of 18.7) than the non-adopters (with a mean of 8.7), but this was not a statistically significant difference. The predicted probabilities do show a tendency for the probability of being an adopter to increase as the number of employees increases, but it is a non-significant tendency. Fig. 7.4.1 illustrates this situation graphically. [p-value = 0.140 < 0.05 chi-square = 6.915, df = 7]

Which came first? The larger size of a business was a factor in their decision to adopt or did the adoption enable the business to grow to a larger size? Although two of the non-adopters used their small size as a reason not to adopt e-commerce, the reverse applied to the small adopters. For at least three of the adopter SMEs (two one-person and one two-person business) their small size was a major trigger that pushed them into adopting e-commerce. E-commerce enabled them to compete successfully both nationally and/or internationally. As long as they met the usual requirements of successful business – such as maintaining good customer relationships, responding rapidly to communication, and filling orders promptly – their size was not an issue (Janda et al. 2002). Indeed, in the electronic market place, the size of a business is not evident *ceteris paribus*. Was it a lack of interest that stopped the non-adopters from adopting e-commerce? Or was it lack of awareness of the potential for their business?

**Fig. 7.4.1 Number of employees**

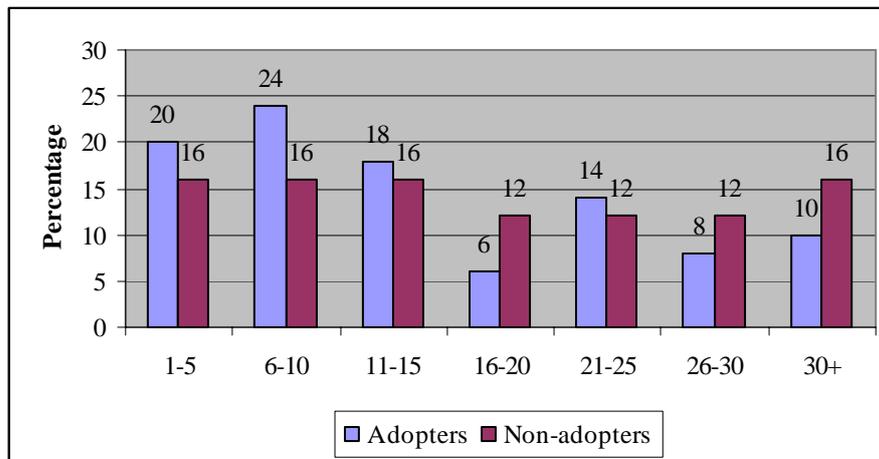


The NOIE study, *E-commerce – Beyond 2000*, predicted a significant growth in Australia's GDP as a result of the adoption of e-commerce (NOIE 2000b: 3). This study supported NOIE's prediction. The 50 adopter SMEs make a significant contribution to the work force of the ACT economy, directly employing almost 1,000 workers as well as being responsible for the employment of over 70 contractors. Non-adopters, on the other hand, employed much smaller numbers. The 25 cases in this study employed only 218 workers and they employed no contractors. Thus the contribution to the economy is much larger for adopters of e-commerce pro rata than for non-adopters, supporting the government's push for SMEs to adopt.

#### **7.4.1.2 Number of years in business**

Although this was not named as a factor of consideration in the adoption of an innovation in most of the literature studied, in this particular study, the length of time of operation did appear to be a factor, results which were similar to those cited by MacGregor and Vrazalic that businesses that have a 'long-established set of work practices will very often avoid any form of IT intervention that threatens to disrupt those long-held practices' (2004: 11). Non-adopters had been in business much longer than the adopters – an average of 18.2 years, compared with 10.7 years for those who had adopted. Eight of them were imprecise about the number of years they had been operating, saying 'more than 35' or 'more than 25'. For calculation purposes, the number '35' or '25' was used, that is, the lower number they mentioned. Had they given accurate figures, the average length of time would have been higher. Only one had been in business for one year, but this person had worked in the business before buying it a year ago. Another had been operating for two years, and one for four years. Apart from these, the remainder of the non-adopter SMEs were long-term operatives. Thus it could be assumed that they were all successful businesses. When these figures were tested for significance, the result showed that there was a significant association between the two variables. [p-value = 0.12 < 0.05 chi-square = 0.12, df = 6]

This suggests that the longer SMEs remain in business without adopting e-commerce, the less likely they are to adopt it. Fig. 7.4.2 shows this situation graphically.

**Fig. 7.4.2 Number of years SMEs have been in business**

Perhaps by being in business for so long, the non-adopter firms had become settled, well-established, and were satisfied with the current ways in which they conducted their affairs, and were not keen to introduce innovations that would require significant changes to their procedures. Or, it may have been as Lawrence (1997: 594) found – there was organisational resistance to change.

#### 7.4.1.3 Industry in which SMEs operated

Rogers says that complexity of an innovation can affect its adoption (1983: 15, 230-231). Those industries that operate in an ICT environment find e-commerce much less complex than those industries that had little experience with such technologies. Thus, ICT-related industries were more likely to be among the early adopters of e-commerce (West 2001). This was found to be the case in this research. Four adopter SMEs were in ICT-related industries, while not one of the non-adopter SMEs was an ICT-related business. OECD indicated that the sale of non-physical products such as software, travel services, entertainment and finance are the principal products sold electronically (1997a: 1, 4, 11-13). MacGregor and Vrazalic (2004: 11), in reporting on the results of a number of other studies, found that adoption of e-commerce was related to the type of industry in which SMEs operated. In this research there was no concentration of products, nor did the industry in which SMEs operated appear to have an effect on the rate of adoption. There was a broad representation of all categories of businesses using e-commerce. *Chapter Four Section 4.7.3*

*Representativeness of sample* shows the wide range of types of businesses in this study.

Lawrence (1997: 596) found that SMEs in Tasmania did not believe the industry in which they operated was particularly suited to e-commerce. Many of them believed that their customers were of a certain socio-economic level which would not consider buying products online. Although similar views were expressed by several SMEs in this study, those SMEs adopted elements of e-commerce for the benefit of their firm, not for the benefits of their clientele. E-commerce is seen by those SMEs that have not yet adopted as being complex and difficult to adopt. Apart from ICTs, there was not one industry that appeared to be more conducive to adoption than any other. E-commerce as an innovation does not appear to be industry specific.

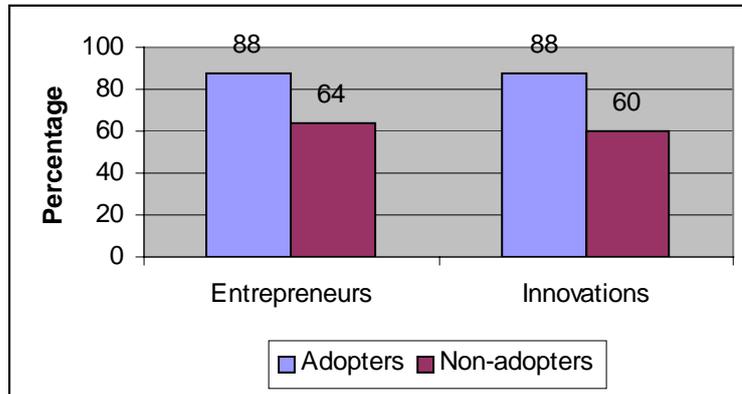
#### **7.4.1.4 Decision-makers as entrepreneurs**

Carland et al. (1994: 135) says that risk bearing is a prime factor in the entrepreneurial character. Poon, in his study of small business internet commerce in Australia, found that entrepreneurship was a likely factor in the adoption of IT. He confirmed the finding that the likelihood of IT adoption hinged upon Chief Executive Officer (CEO) innovativeness, attitude towards IT adoption and IT knowledge (Poon 1998a: 349, 374). Harvey (2000: 192-193) and Keen (1999) both maintain that the best results in creating a successful online strategy are achieved when CEOs not only involve themselves in identifying and articulating their company's vision, but also when they participate in strategic decisions regarding the internet.

It was anticipated that, as e-commerce is an innovation and that this study was investigating the adoption of that innovation, the majority of SMEs in the study would be considered entrepreneurs, or people who would take the risk of adopting another innovation. This proved to be the case. As entrepreneurs they were prepared to introduce innovations into their businesses. Only 12% of the adopters considered they were not risk takers; the other 88% felt they were. Even among the non-adopters, almost two thirds (64%) considered themselves as entrepreneurs, willing to introduce innovation into their businesses. For the non-adopters, this attitude just did not extend to e-commerce. Fig. 7.4.3 shows the situation graphically. Perhaps it was that e-commerce was not compatible with the existing culture of their businesses which

were well established and secure in the way they were currently operating. As Rogers says, if an innovation is not compatible it will not be adopted (1995: 225-228).

**Fig. 7.4.3 Decision-makers as entrepreneurs who introduce innovations**



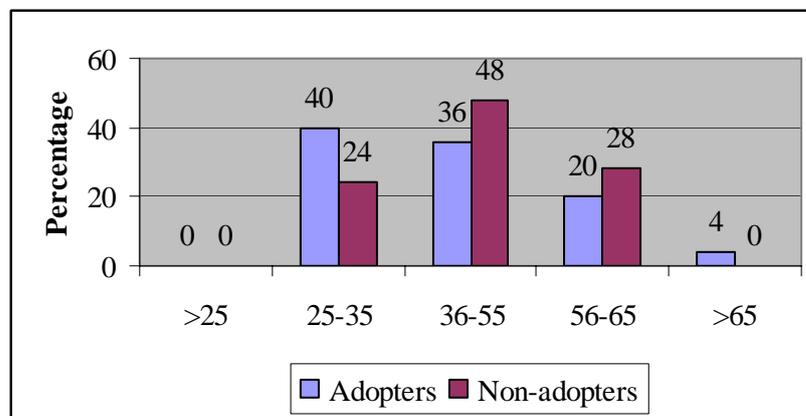
If adoption hinged on an entrepreneurial attitude, then it could be expected that the non-adopters would be less entrepreneurial in their attitudes than the adopters. This, however, was not the case. Statistically, there was no significant difference between the stated entrepreneurial attitudes of adopter SMEs and non-adopter SMEs.

Of course, non-adopters may be leaders in adopting innovations generally, but followers when it comes to seeing the profitability of e-commerce. They may be waiting for perceived profitability to improve, an improvement that often accompanies refinements to the innovation and cost reductions. Their 'wait-and-see' attitude may result in better services. For instance, broadband may be more universally available at cheaper rates so that late adopter SMEs avoid many of the problems experienced by early adopter SMEs, problems such as lack of reliability (of ICTs), lack of understandable language, lack of transparency of charges, and high charges of ICTs. Being late adopters or followers may better serve them. They could benefit from solutions provided to what were challenges experienced by the earlier adopters.

#### 7.4.1.5 Age level of decision-makers

Although age had not been shown to be a major factor of consideration in the literature relating to the demand aspect of adoption of e-commerce, in this study, there was a significant association between the two variables. On the whole, the adopters were younger than the non-adopters. [p-value = 0.01 < 0.05. chi-square = 11.2, df = 3] This could be related to younger people being more at ease with the technology than older persons through greater exposure to it generally. ‘The likelihood that a person uses the internet decreases with age’ (ABS 2004: 632). Lloyd and Bill (2003), in an analysis of Census data, found that users of the internet generally seemed to be in the younger age groups, as did the ABS (2000: 12-15) and Wallace (1998). Other studies have reached similar conclusions. Yet the only two in this study who were over the age of 65 years were adopters. Although they appeared as outliers in the results, the overall effect of the younger age of adopters generally was so powerful that it negated any effect the outliers may have had. Fig. 7.4.4 show the age distribution of both adopters and non-adopters.

**Fig. 7.4.4 Age level of decision-makers**



#### 7.4.1.6 Educational level of decision-makers

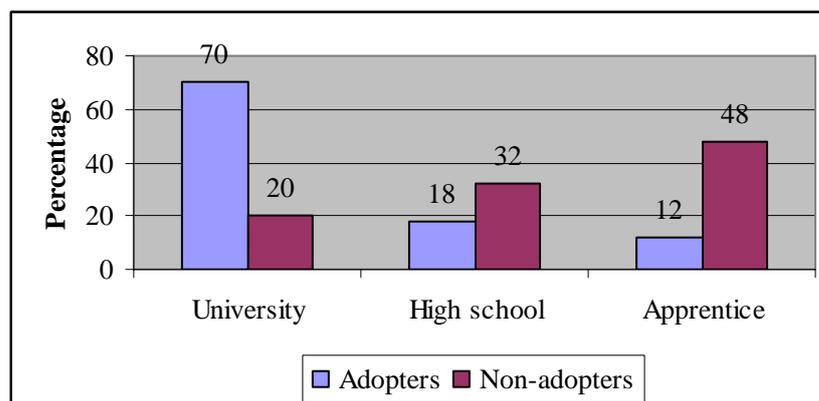
Evans (2002) had found that higher education institutions had played a pivotal role in encouraging SMEs to adopt e-commerce in two regions in Great Britain. As with similar studies of computer use, Lloyd and Bill (2003), in reporting on the ABS Australian Census Analytic Program, pointed out that computer use and use of the internet both increased with educational attainment. Thus it was expected that those who adopted e-commerce would have had a higher educational level than those who

did not. This was the case. More of the adopters had gained a university degree than had the non-adopters (70% compared to 48%). A lower percentage of adopters had completed their education at either high school (18% of adopters as against 32% of non-adopters) or as apprentices (12% of adopters compared with 20% of non-adopters). The greatest difference was with those who had completed an apprenticeship. While only 12% of adopters had completed their education at this point, 32% of the non-adopters had completed apprenticeships. Thus it can be seen that non-adopters had, on the whole, a lower level of education than did the adopters. Fig. 7.4.5 shows the educational level of SMEs in this study.

When these figures were tested for significance, the association between these two variables was significant. [p-value = 0.000 < 0.05. chi-square = 18.254, df = 3] This result suggests that when decision-makers in SMEs have a high education, especially if they have a university degree, they are more likely to adopt e-commerce.

Regardless of whether they were adopters or non-adopters, people with a university degree were not necessarily working in the field in which they had obtained their university qualification. It was almost as if this level of education gave them the flexibility to operate successfully in any chosen area.

**Fig. 7.4.5 Highest educational level gained by decision-makers**



### **7.4.2 Resource implications**

Resources that can impact upon the decision to adopt include time, personnel, finances, and technology. The need for adequate resources was mentioned by half a dozen of the adopters. SMEs need to ensure they could afford the resources needed to

do the adoption properly. If SMEs cannot afford to allocate the resources, then they should not start the adoption process. Not only would it be inefficient but it would be a waste of time and money. Lawrence found that SMEs in her study were quite severely constrained by limited resources, which were exhibited in both a lack of computer-literate staff, a lack of disposable finances, and lack of free time available to undertake what they saw as non-core business (1997: 593).

#### 7.4.2.1 Time as a resource

SMEs adopt e-commerce when decision-makers within the organisation have the *time* or incentive to find out what is involved in the process.

Lack of time seems to be endemic to SMEs. They constantly cite time or lack of it as a major concern in their business. According to most other studies, the major factor stopping SMEs from adopting e-commerce appears to be lack of time – lack of time to find out about it, to learn how it operates, and to arrange the purchase of necessary equipment and complete training needed while still meeting all the other demands of their business (Lawrence 1997: 593-594; PriceWaterhouseCoopers 1999: 12; Yellow Pages 1998). It was anticipated that time would have been a major reason given by SMEs in this study that held them back from adopting e-commerce.

Time was quoted as a significant resource factor by the non-adopters, but although adopter SMEs said they never had enough time to do all they wanted, none of the adopter SMEs in this study used it as a reason not to adopt e-commerce. Time issues may have been a consideration, but certainly did not deter adopter SMEs from adopting. Lack of time was cited, however, as a reason not to engage in many other associated activities such as attending seminars and workshops, or learning about new procedures, that is, in keeping up-to-date. On the other hand, the non-adopters cited lack of time as a significant resource factor in their unwillingness to consider adoption.

Adoption of e-commerce would also take a lot of *time* by *staff*. Someone needs to take the time to find out what is involved, how to do what is needed, to be trained to do it, and to keep up-to-date. Even if outside consultants were contracted to construct what is needed, staff must still learn how to operate the system, and need on-going training

to maintain their skills. All of those SMEs that had adopted e-commerce could appreciate the potential benefits of engaging in this new means of doing business so were prepared to invest the time, but it is not surprising that the non-adopter SMEs who could not see any great potential for their business were not prepared to do so. A high 60% of non-adopters could see no benefit at all. Of those that could see some possible benefits, only 20% believed that there could be any time savings, with another 16% (or four cases) seeing that there could possibly be improved business efficiencies.

#### **7.4.2.2 Financial resources**

SMEs adopt e-commerce when the cost (of equipment and infrastructure, personnel, staff training, maintenance and web site) is able to be borne by the organisation without loss of profitability.

The availability of capital – especially venture capital – in the United States has impacted on adoption of innovations in that country as it has in many others (Ah-Wong et al. 2001: 102; Herbig et al. 1994: 41; Trombly 2000: 62-64; West 2001). Ihlström (2001), investigating barriers that deterred adoption by SMEs in Sweden, found that lack of capital inhibited adoption. In the analysis of what makes an effective innovation system (that is, one where innovations are diffused and adopted successfully), West (2001) stressed the absolute need for potential innovators to have access to venture capital. Parker (2000: 245-246), too, in looking at the situation in Australia, named the availability of venture capital as a necessary component of adoption of innovation. The adoption process – like any other IT project – always takes more money than expected. In this thesis, the availability of capital was of concern to several SMEs. They indicated that they would have liked to have access to venture capital. They believed they had sufficient funds to begin the process, but as costs escalated, they realised that they needed more funds if they were to complete the project satisfactorily, but did not always have access to the necessary funds. Although several indicated access to venture capital would have assisted them, most seemed unaware that there are a number of sources where venture capital is available. (See *Chapter Two, Section 2.4.3 Perceived disincentives to the adoption of e-commerce, Availability of capital* for some of these sources.)

Adopter SMEs in this study did not consider the cost or availability of resources when they decided to adopt e-commerce. It was as if the decision to adopt had no considered impact on resources. Once the decision was made to adopt, they went ahead with the process, regardless of the availability of resources. Necessary resources were found, regardless of the cost.

#### **7.4.2.3 Technology resources**

SMEs adopt e-commerce when broadband facilities (or other reliable and comparable telecommunications infrastructure) are available.

Manufacturing industries in the past required access to good transport facilities, but 'high tech' businesses of today – particularly those that have made e-commerce an integral part of their business operations – are more dependent on high-speed reliable telecommunications infrastructure. The simplest form of e-commerce can be carried out over plain old telephone technologies (Papandrea and Wade 2000: 9), but large volume transactions need technologies that can support the rapid transmission of large bodies of data. SETEL (2001a) promotes what it calls effective telecommunications as one of the main drivers of small business:

Along with innovative products and services, trained and committed personnel, imaginative marketing, sound financing and so on, your business planning should target effective telecommunications (SETEL 2001a).

As there has been much emphasis on the role of telecommunications, it had been expected that the existence or non-existence of reliable telecommunications facilities would have played quite a significant part in the adoption process by SMEs. It had been anticipated that the roll-out of broadband facilities throughout the ACT by TransACT would have encouraged SMEs to move to broadband services. It had also been anticipated that SMEs that had access to high speed broadband access would have embraced e-commerce readily.

This did not prove to be the case. Access to broadband had not been a consideration to those SMEs that had adopted e-commerce. There does seem to be a widening gap between SME awareness and usage of the capabilities of emerging broadband technologies and existing narrowband services. Not having experienced the benefits of high-speed broadband, they did not realise what they were missing. Only 14%

indicated that internet access was a problem. The remainder were quite happy with the access they had, even though it was, for the most part, not broadband. Only 7% indicated they were waiting for broadband access; in the meantime, they were 'making do' with dial-up access. What was of greater importance was *reliable access* to internet. As Rai (1998: 97) says too, the reliability of telecommunications links is of paramount importance to the further development of e-commerce, yet is frequently not provided. The need to make reliability of telecommunications services a priority was also stressed by SETEL in October 2003 when Telstra reported great difficulties with managing emails to small business after their server was attacked by a worm (or virus). SETEL recommended that small businesses, in their own interests, give greater importance to reliability rather than simply considering price when purchasing IT goods and services (including ISPs). SETEL expressed its on-going concern thus:

SETEL is surprised and concerned that Telstra has experienced greater difficulties dealing with the latest worms than other ISPs. If Telstra has difficulties dealing with a 20% increase in emails then what lies ahead as a result of the current heavy marketing campaigns for broadband services and the signing up an ever increasing number of broadband customers?

This coupled with the announcement of future cuts of approximately 4% in capital investments in telephony infrastructure, SETEL has real concerns for the robustness of future internet services (SETEL 2003b).

[SETEL (2003c) later quoted Paul Budde, a telecommunications consultant, as saying the melt-down was no surprise as a previous Telstra CEO had indicated to him that Telstra's Customer Access Network was not 'up to scratch'.]

Other technological issues that were of concern were the on-going costs associated with keeping-up-to-date and/or needing to upgrade facilities as needs expanded or services were enhanced. The purchase of new equipment and systems was a constant that had not always been anticipated, yet was a necessity if they were to remain competitive. An unexpected criticism was of the language used by technocrats. They spoke in technical terms that were relatively unintelligible to SMEs in general, making it difficult for SMEs to understand contracts as well as helpdesk assistance. They used what SMEs called 'technobabble' or 'gobbledegook'.

The adoption of e-commerce requires the use of adequate computer and telecommunications technology. It is possible to start off small, and upgrade as one's needs grow. Adopter SMEs found they needed to constantly upgrade their systems if

they were to remain competitive. Several of the adopter SMEs recommended the purchase of leading edge technology in the first place – not to buy cheaper equipment that will not be able to accommodate further enhancements that will follow later. This would save money in the long-term as the equipment would not need to be replaced when the business needs to incorporate other features.

#### **7.4.2.3.a Telecommunications and ISPs**

Another important aspect of the availability of technology resources is that of telecommunications and ISPs. In common with findings from Poon and Swatman (1999a) and Abell and Black (2001: 5), reliability, cost and language used by telecommunications and ISPs were the subject of many complaints from adopter SMEs in this study. It appears that despite the Besley Inquiry (or the independent Telecommunications Service Inquiry (TSI)) little has changed,. Among other responses to this inquiry, in response to TSI Recommendations 9, 11 and 12, the Commonwealth Government, in 2001, announced that it would:

- a) Implement reliability standards, and monitoring and enforcement arrangements for services provided under the USO [Universal Service Obligations];
- b) Improve the quality of service reporting for major service providers to allow consumers to make more informed decisions on price and quality; and
- c) Direct the Australian Communications Authority (ACA) to adequately monitor faults and investigate extreme cases of failure to meet CSG [Community Service Guarantee] standards (DCITA 2003).

If the Government has implemented these reliability standards, SMEs in this study do not seem to have been positively affected. The lack of *reliability* of all telecommunications-related services continues to remain an issue of high concern to SMEs.

*Cost* of telecommunications is also an issue. This includes cost of telephone, especially of mobile phones, and also of ISP provider costs and contracts. There were many complaints directed against Telstra specifically for increasing access and rental charges without ample justification. The Government has attempted to impose price caps on Telstra services so that customers of those services are not subject of large

price increases. They expected there would be enhanced competition and cheaper call or usage costs, albeit with more expensive costs of access. Businesses were expected to benefit from lower usage charges more than offsetting the increased access charges. Special concessions would be required for low volume users. That Telstra could again – in March 2003 – increase both access and rental charges signals the relative lack of competition in this market.

Like the last time it altered its pricing structure, the Telsta price changes are too complex, or there are too many in one package for users to readily comprehend the implications. Most SME users choose not to undertake the required analysis and become price takers yet again. In too many instances they have no alternative sources of supply. So when do we start to see some gains? A significant number of small businesses (particularly home-based businesses would have taken advantage of off-peak calling rates to reduce or control communications costs. Elimination of these advantages will have an impact on these types of businesses (SETEL 2003a).

This could be a major factor in driving users into mobile telephone – an emerging trend that was mentioned in a prior SETEL brief (but a trend not favoured by SMEs in this study). The high cost of mobile phones was a source of concern for a number of SMEs in this study. They needed and appreciated the convenience of mobile telephony – especially with staff who worked out of the premises, but were concerned at increasingly high costs of that convenience. This issue was not studied in this thesis, but is one that could benefit from further research.

### **7.4.3 Return on investment or Cost benefit**

SMEs adopt e-commerce when decision-makers within the organisation believe the cost-benefit will be sufficient to justify the means or that they will gain a competitive advantage.

There seems to have been little direct research into the management of benefits from e-commerce investment. The exploratory study by Marshall and McKay is one of the few exceptions. Their study found that there were:

Generally ad hoc approaches to evaluation of the proposed electronic commerce investments, almost non-existent post-implementation reviews, few measures of success, and generally speaking, there was little evidence of there being proactive management of the realisation of benefits of those investments (Marshall and McKay 2001: 191).

As economists and business accountants constantly remind SMEs to consider the ROI before undertaking any new procedure or investment (Bierman and Smidt 1984: 36-37, 264-275; D'Amico 2002: 13; Colkin 2002: 34; Spiegel 2002: 26), it had been anticipated in this study that SMEs would have conducted some form of analysis to estimate their expected return on investment before adopting e-commerce in their businesses. However, in common with Marshall and McKay (2001: 201-202), results showed this was not the case. Return on investment was not considered important – at least not in this study. As Kothari and Kothari (2001: 1-2) pointed out, most SMEs did not even consider it when adopting. It appeared that once SMEs had made the decision to adopt e-commerce, they were prepared to bear all costs (staffing, financial, time and other resources) involved without any expectation of a particular return. Indeed, they often saw the need to outlay the necessary investment as essential to the continued existence of the business. If they did not make the investment, they would not have a business at all. Their primary motivation was to remain ahead of their competition.

None sought professional financial advice prior to the investment, while most seemed to rely on 'gut feelings' that they needed to invest in e-commerce without doing any up-front evaluation of potential benefits. Difficulty in calculating ROI also resulted in a number of adopter SMEs relying on 'a gut feeling' that their adoption had been profitable. There were a number of non-adopters who felt that it would be uneconomical. Most SMEs in this study had (perhaps unconsciously) followed the teachings of Pfeffer (2002) who pointed out that innovators need to be free of the constraints of having to stay within boundaries that will provide a certain ROI. How can they be innovative and free to attempt new things and to implement new ideas if they have to consider the budget? This is not to say that the finance department should give them an open cheque book, but close confinement to budgetary constraints will inhibit innovation. As he says, budgetary constraints and goals of meeting certain returns within a given period provide limitations that are at variance with the adoption of innovation. It was only when SMEs had completed the adoption process or were well along the path that they looked at the need for a ROI.

When an old technology (such as bricks-and-mortar) is supplemented or replaced by a new technology (like e-commerce), the cost ratio of the new to old needs to decrease if the adoption is to be cost effective (Bierman and Smidt 1984: 70-71). Adoption

succeeds when the costs of adoption are exceeded by the potential stream of benefits that are yielded. Yet e-commerce costs continue to escalate. They are not merely a transfer of cost centres, but implementation of new ones. The number of cost centres actually increases, including, for example, telephony, staff training, computer and other technologies, and constant upgrades. To offset the increased costs, there needs to be an increase in profitability. Increased profitability is difficult to measure precisely as it can occur singly or in a combination of ways, as discussed in *Section 7.3.1 First research question* earlier in this chapter.

Interestingly, although many of the interviewees suggested that any business seeking to adopt e-commerce should scope the requirements, conduct a needs analysis and a cost benefit analysis of the anticipated return of expenditure on setting up e-commerce, only one of the fifty adopters interviewed actually indicated they had done a cost benefit analysis themselves. The nature of that particular business is to provide quality assurance to other companies. As this SME said:

We are a quality assurance company, so we need to do risk assessment and needs analysis and so on ourselves. We have to keep our accreditation and we have to do it in order to maintain the credibility of our clients. If we didn't do it ourselves, how could we tell our clients they should? Besides it is the only way in which you can know what to do in devising a solution that will work (#49).

Adopter SMEs recommended *post facto* to other SMEs contemplating the adoption that once the cost analysis had been completed, SMEs should shop around, and watch costs to make sure that any expenditure was cost effective. It was important to keep the company's goals in mind and how e-commerce would help achieve them, while remaining cost effective.

Closely allied with gaining a cost benefit, was the desire to remain competitive (Daniel and Grimshaw 2002: 137). This reason was not considered the same as gaining a cost benefit, but it almost becomes the default reason for justifying further expenditure. It had been anticipated that this would be high on the list of reasons why SMEs adopted e-commerce. If they were entrepreneurs, they would be among the early adopters of the innovation. This certainly proved to be the case. The desire to remain competitive was the main reason given by the adopter SMEs in this study for going online. They wished to remain ahead of the field, or to be seen as being progressive. They felt they would lose credibility if they were not seen to be at the

forefront in their industry. They wanted to be ahead of their competitors so they were among the early adopters of the first stages of e-commerce. As their competitors came online, they moved to develop other features that distinguished them from others in the field. They were constantly seeking new ways in which to make their business unique. They constantly sought ways to remain leaders in their field. In this way they hoped to retain their competitive edge. (As the non-adopters had not gone online, they were not asked this question.)

Traditional measures of return on investment do not seem to fit with e-commerce. Cost effectiveness could be measured in terms of utility of the innovation, but, this like profitability, is difficult if not impossible to measure. Hence there needs to be a different recognition of the utility of the innovation. For instance, does it enhance business operations? Consider just one element of e-commerce - email. Email is essential to business in today's online environment (Poon and Swatman 1999). SMEs in this study found it would have been impossible to operate without email (which for 68% of them was the first element to be adopted) now that they had experienced it. Use of email facilitated adoption of other processes. Hence the utility of this element of the innovation is high, yet its profitability is difficult to measure in traditional terms. Adopter SMEs had quite different attitudes towards ROI once they had adopted. They then appreciated the benefits of engaging in the analysis exercise, but still did not do so.

#### **7.4.4 Communication channels**

SMEs adopt e-commerce when their clients want it, or when decision-makers within the organisation maintain professional links outside the organisation (such as with a Chamber of Business) which facilitate their role as opinion leaders within their industry and/or their trade, industry and/or professional associations push for it for other reasons such as stock control or ordering of supplies.

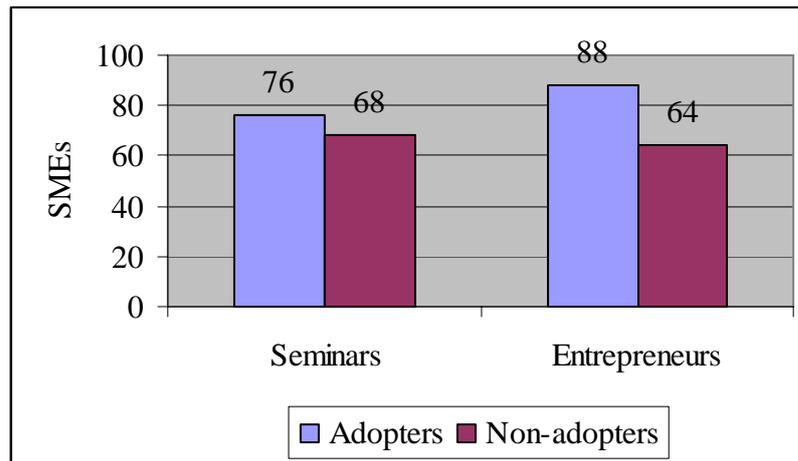
Knowledge of an innovation is essential to its adoption (Brown 1981; Rogers 1995). Thus communication channels used to inform potential adopters and opinion leaders of the innovation are an important part of the adoption process. NOIE, the unit within DCITA with the responsibility of encouraging SMEs to adopt e-commerce, has vast quantities of valuable information on its web site to assist SMEs in all aspects of the adoption and operation of e-commerce (NOIE 2002b, 2002c, 2002d, 2002e). This information was not used by SMEs in this study. Perhaps SMEs need to be online

before they can locate such information. In other words, they need to have already adopted e-commerce before they are in a position to search for it. Through the *Electronic Transactions Act 1999*, the Commonwealth Government is directly encouraging the adoption of e-commerce by those SMEs that transact business with government. In addition, governments at all levels have been running a series of educational seminars. Other seminars have been organised by non-government and industry associations. It was anticipated that opinion-leaders who became adopters of innovations would have been attendees at such seminars - that the attendance at seminars would have been greater for adopters than for non-adopters. Both adopter and non-adopter SMEs were great attendees at seminars, with 76% and 68% respectively attending. Fig. 7.4.6 shows this graphically. These numbers are very similar to those that believed that they were entrepreneurial in their attitude to business (88% for adopters and 64% for non-adopters). However, although both adopters and non-adopters were high attendees of seminars, such seminars did not prove to be their main source of information about the potential of e-commerce. Still, there was a significant difference in the knowledge of e-commerce between both groups. Those who adopted e-commerce seemed to understand what they were undertaking and the potential it had for their business. By contrast, as Lawrence (1997: 594-595) also found, the non-adopters had limited understanding of what the term 'e-commerce' meant, and had even less of an idea of its potential for their business.

It had been anticipated that most SMEs would have gained their knowledge of e-commerce from specially-designed communication channels such as government-sponsored seminars or from their trade, industry or professional organisations. This, however, was not the case. It was also assumed that SMEs that had adopted e-commerce must have a reasonable knowledge of what e-commerce meant. Of those that had adopted e-commerce, there were some who had not known what it meant, but, realising that it was the way of the future, had taken steps to learn about it. However, this assumption was not made about the non-adopters. It was assumed that the level of knowledge of non-adopters may have been a factor in their decision not to adopt. SMEs who had not adopted e-commerce were asked to explain what they understood was meant by the term 'e-commerce'. Only 40% of non-adopter SMEs had a clear understanding of what e-commerce meant, and of this 40%, half intended

adopting e-commerce in the near future. Thus knowledge of the potential of the innovation seemed to be a factor in its adoption. Lawrence's findings support this belief. She found that there was a lack of available information regarding e-commerce among SMEs in her study (1997) as did Pracy (2002).

**Fig. 7.4.6 Attendance at seminars / entrepreneurs**



How then did SMEs gain their knowledge? La Rovere (1998) pointed out that due to the heterogeneity of SMEs, IT diffusion policies in Europe reached only a limited number of these firms who should have been on the receiving end. In Australia this has been called 'the scatter-gun' approach (Herbig 1994). For SMEs in this study, most of their knowledge came from 'normal publicity channels', with a high number of adopters having completed some form of IT training in an educational course. It is apparent that despite the best efforts of government departments such as NOIE and non-government associations such as AUSe.NET to educate them, the majority of non-adopters (60%) lacked sufficient knowledge to encourage them to investigate the potential of e-commerce with a view to adopting it. Of non-adopters, 68% attended seminars where they were exposed to new ideas. Of the other 32% who indicated that they did not, one said that he used to, another (who was more progressive in his plans for his business) said he 'would like to but was just too tired', while two others said they very rarely attended any.

There is little correlation between high attendance at seminars and awareness of the potential benefits of e-commerce. Most seminar attendees indicated that the type of seminar they attended was related to their profession, but they were not asked how

they were related. Do these seminars relate specifically to existing elements of their business only (such as tax, insurance, employment awards, or promotion) or are they requirements for continued registration of their practice (as one chiropractor acknowledged) and not directed to learning about innovations such as e-commerce?

Attendance at seminars was not statistically a significant factor in the adoption decision between adopters and non-adopters. [ $df = 1; .05 = 3.841$ , chi square = .47]

If SMEs attend seminars and do not learn about innovations such as e-commerce, and if they belong to trade, industry or professional organisations where they do not learn about innovations, how can they learn about them? What other communication channels can be effectively used? What implications do these findings have for those government and non-government associations that act as sponsors of seminars? Have they been wasting their money? Has the scatter-gun approach been the cause of failure? There are obviously implications for the communication channels used and this could be the subject of further research. Could the sponsors of educational seminars target the trade, industry or professional associations?

Whatever, SMEs do not want to be educated about the technology per sé but about its actual uses and benefits – the *potential* of e-commerce for their particular business.

#### **7.4.5 External influences**

SMEs adopt e-commerce when there is some external influence that encourages them to do so, such as when their clients want it, or when trade and/or professional organisations push for it for other reasons such as stock control or ordering of supplies.

##### **7.4.5.1 Push by clients**

Hahn and Schoch (1997) point out that adoption of an innovation is contingent upon its acceptance by the community within which the adopter operates. If clients of SMEs accept e-commerce and push for its adoption, then SMEs are more likely to adopt the innovation. According to the *Small Business Index* in 1999 (Yellow Pages 1998), 14% of small businesses and 29% of medium businesses have been prompted by their customers to consider adopting e-commerce. Poon also found that most use of

the internet was to support customer relationships rather than supplier relationships. Poon explained that this was likely due to the fact that most small firms online did not have traditional 'suppliers' per sé (Poon 1998a: 365; 1999b: 119-120). Lawrence found that SMEs refused to adopt e-commerce 'unless there was a specific request for it by its trading partners (1997: 596). Results of this study were similar to those of these researchers.

In other studies businesses expressed the belief that most of their customers are not ready for e-commerce (Colvin 2001; Yellow Pages 1998). Although SMEs in this study also expressed the belief that their customers were not ready for e-commerce, readiness of their clients was not a factor in their own decision to adopt. Indeed, one food wholesaler was adamant that his customers were not ready for it as many of them did not even own a computer, but he felt he had to adopt as it was the only way in which his business could remain viable. Prior to his adoption of many elements of e-commerce, his staff had to re-type orders and send them by fax to his suppliers, with a consequent high error rate. Now orders went directly into computers, where the same entry was used for a number of functions – ordering from suppliers, checking of delivery from his suppliers, sorting for delivery to his customers, confirming of payment to delivery contractors, checking of errors in delivery, and invoicing customers. Of the two SMEs for which clients were the instigators, one client was very well versed in the potential and processes of e-commerce, and he offered much valuable advice and guidance to the SMEs not only in getting established, but subsequently as well so that the SME continues to make progress in development and use of this client's advice. [Although the SME was willing to hire his client as a consultant, the client has continued to offer his advice free of charge.] This SME is one of the few that uses a database of clients for marketing purposes. The other client was more casual in his approach, merely making a suggestion upon which the SME chose to act. Other than these two, clients were not instrumental in pushing SMEs to adopt.

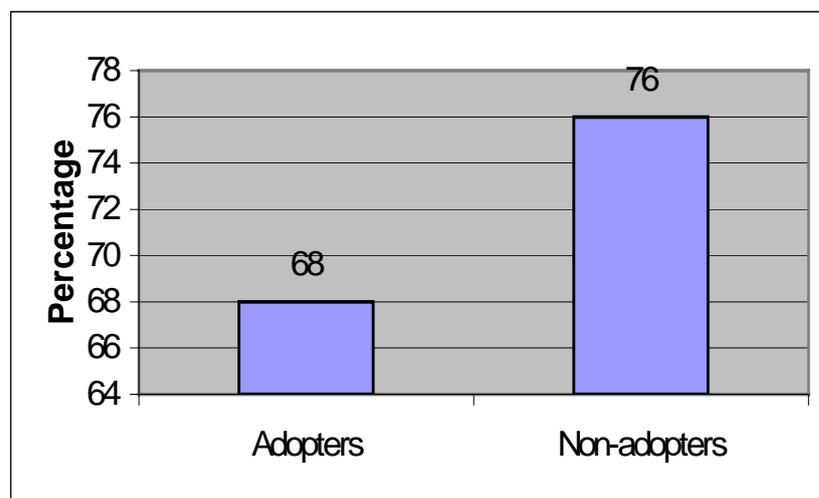
#### **7.4.5.2 Push by other agencies**

It had been anticipated that trade, industry and professional associations would have played a significant role in persuading SMEs to adopt e-commerce. The push by government departments had the implicit expectation that those businesses that had

adopted would act as opinion leaders who would influence, either directly or indirectly, other less motivated businesses to adopt e-commerce. In this study, pharmacies were the only ones that indicated their professional association had played any part in their adoption of e-commerce. For them, their association was instrumental in providing weekly updates to PBS changes online – a move which improved the reliability of stock control. For all others, the trade, industry or professional association had played no part at all in their decision to adopt. While 68% of adopters held membership of their trade, industry or professional association, an even greater number, 76%, of non-adopters held membership. If membership were a factor in the decision to adopt, one would expect the non-adopters to have a lower membership than the adopters, but this was not the case in this study.

Membership of professional associations was not a statistically significant factor in the adoption decision between adopters and non-adopters. [df=1; .05 = 3.841, chi square = .47]

**Fig. 7.4.7 Membership of professional associations**



What was completely unexpected was the role banks played. Early in the interview process it became apparent that the banks were a critical factor in the adoption process for a high percentage of SMEs. They reported that banks had approached them about adopting online banking facilities, even when they used no other elements of e-

commerce. The original questionnaire had not included a question asking if banks had approached the SME to suggest they do their banking online. It rapidly became obvious, however, that there was a pattern by banks instigating the approach, so the researcher then made a point of asking SMEs if they had been approached by their bank, and which bank did they use for their business. Phone calls back to SMEs interviewed earlier were not always able to establish if banks had been instrumental to their adoption process. Thus it is not possible to provide accurate figures of the number of adopter SMEs approached by their banks. As non-adopter SMEs were interviewed after the adopter SMEs, they *were* asked if they had been approached by their bank. Interestingly, in only three instances had banks approached the non-adopter SMEs. Not all SMEs had been approached - the size of a business did not seem to be a factor. Some single person businesses had been approached (but had refused, largely because of the cost to them), and some larger businesses with ten to fifteen employees had not been approached. Of the non-adopters, those that had been approached had three, eight and sixteen employees respectively.

It was difficult to find out what triggered banks to approach SMEs. There did not seem to be a pattern. The researcher began by approaching a banking representative who had spoken at the e-commerce forum in 2001. Although he was courteous, he was not informative, merely suggesting she approach branches of the banks themselves. The researcher approached all banks nominated by SMEs to find out what was their policy about approaching SMEs. However, if there was a pattern, she was unable to discover it. There was no distinction between banks; all of the major banks were involved, plus several of the smaller ones. Each of the banks visited indicated they did not know of any specific policy and merely presented the researcher a packet of the literature they gave to commercial operators about the services they offered. These packets of literature revealed nothing about policy. Perhaps this is an area of potential research that could be followed up by some other research, possibly by a business management researcher.

There seemed to be a huge variability in costs and fees charged by the different banks with little basis for comparison. The range of costs varies widely and there does not appear to be any move to standardise fee offerings for competitive purposes. This was a source of complaint by a few SMEs but most SMEs found advantages emanated from banking online.

At one end of the spectrum several banks offer services with no additional charges for internet banking. While at the other end, certain banks require some or all of the following: a software provision fee, monthly charges for software, start-up or installation fees, monthly account fees, transaction fees, funds transfer charges and charges for providing 'help' services. In a number of cases these fees are stated to be volume based (NOIE 2003).

Of other agencies that may have acted as triggers to SMEs in their decision, financial institutions played an important role.

#### **7.4.6 Government initiatives**

SMEs adopt e-commerce as a result of government initiatives such as taxation, provision of information sources, seminars and workshops.

The government has introduced a number of policies that relate to SMEs. Policy, however, is not enough. There needs to be action to make it easier for SMEs to be entrepreneurial. [See *Chapter Two, Section 2.7.1 Government initiatives - policy, legislation and aid* for discussion on some government initiatives to encourage adoption of e-commerce by SMEs.] Although not unique to e-commerce, SMEs in this study found compliance to government requirements to be quite onerous. Some of the issues relating to government are discussed below.

**Taxation:** Despite the best efforts of the Commonwealth government to date on its tax reform measures, SETEL (2001b: 3), in quoting a special report based on a survey of 1,800 SMEs, points out that the most significant barrier to SMEs becoming innovative is the tax system and the demands of GST. The present government claims that it has simplified the taxation system, but this did not appear to be the case for most SMEs in this study. Although taxation requirements were not specifically targeted in this research, a large number of SMEs complained that government taxation requirements plus compliance with employment requirements placed an onerous burden on them. Complying with government taxation requirements is extremely cumbersome. SMEs were almost unanimous in their expressions of frustration relating to this side of the business. They said it was relatively easy to keep their accounts, but to convert that information to suit tax requirements was not easy. It appeared that the smaller SMEs were the ones with most difficulties. One SME said it had to employ one person whose sole task was to make sure the company complied

with employment and taxation requirements. Taxation requirements are too complicated.

Application of the GST had simplified matters for several SMEs in this study, but certainly not all. One SME noted that its cash flow had improved now that its clients (mainly smaller contractors) were required to claim back on their tax credits on a quarterly basis, so now paid their accounts more regularly. Another said that GST had simplified its bookkeeping procedures as where previously it offered various rates of taxes to different classes of clients, it now charged *all* of them ten per cent. However, the majority of comments on the tax system were negative. There were many complaints that the present method of having to add the GST to every single item in a transaction unnecessarily complicated matters. It would have been much simpler had the 10% been charged on the total transaction of all goods or services purchased rather than on the individual components.

Each component has to have its GST added to it to make the total of the job when it would be much easier if we could do the job, and then add the tax. Bureaucrats have no idea of how much work is entailed in keeping up with their decisions. They need to get out into the real world to see what happens before they make such decisions (#4).

**Government regulations:** The researcher was surprised by the number of SMEs that complained about the high cost of adhering to a multiplicity of government regulations that applied to businesses generally, as well as to specific industries. This had not been included in the questionnaire, but came out through discussion with interviewees time and time again as a major source of frustration. This situation is not, of course, unique to those SMEs that had adopted e-commerce.

**Cost of compliance with employing workers' entitlements:** This is extremely high, making up 25-30% over and above what workers are paid in wages. Compliance costs have to be paid on up to fifteen different categories, including superannuation, long service leave, apprenticeship tax, sick leave, workers compensation, travel allowance, uniform allowance, tool allowance, and so on. It is not only the cost of paying these, but the paperwork involved in associated record-keeping that has driven a number of SMEs in this study to decide not to employ any new workers. Instead, they are now not replacing workers who leave, and they are encouraging present workers to set themselves up in their own businesses whom they then re-hire as sub-contractors. The sub-contractors then are responsible for carrying the costs themselves.

**Government intervention:** SMEs did not want government to intervene as much as it does with its 'over-regulation', but they did want government to provide the right environment to facilitate the adoption and to protect them once they were engaged in business. Government needs to provide safeguards to ensure security of online transactions. They need action more than policy – especially in simplifying the taxation system and requirements for employees. As previously noted, the high cost of employing workers is driving many of them to use the same people they once employed as consultants.

Government needs to work more closely with industry-related bodies such as AUSe.NET and SETEL. When undertaking research, it needs to work closely with industry in formulating the research so that it knows to ask the right questions and what those questions should be. Although the impact of government policies was not included as part of this study, that so many SMEs commented on them suggests that this is an area that could benefit from further research.

Despite the mass of online help available at government online sources (NOIE 2002a, 2002b, 2002d, 2002e), very few SMEs in this study used any of them. Indeed, only one indicated that he had used government sources – which he had found to be extremely valuable.

#### **7.4.7 Other issues**

##### **7.4.7.1 Security issues**

SMEs adopt e-commerce when security can be assured to customers and to the organisation, not only in ordering and paying for transactions, but also in keeping records safe from outside interference.

Cost, security and privacy issues have been cited by a number of authors as potential deterrents to the adoption of e-commerce, not only by large businesses, but also by SMEs (for example, APEC 1999: 36-37; Bidgoli 2003: 56-59, 328-335). Kotwica, for instance, in her survey of 120 companies situated in all continents, reported that resistance to the adoption of e-commerce by SMEs included security issues, resistance to change, and start-up costs (2001). It was anticipated that similar findings would result from this study. SMEs did recognise them as potential problems, but did not see them as actual deterrents to the adoption decision. Only three of the non-adopters said

security was a concern to them. Adopter SMEs indicated that security issues became of greater concern to them once they had moved online. Prior to going online they had been aware of security issues, but not greatly concerned. Once they had actually moved online, the issue of security suddenly assumed much greater importance.

Adopter SMEs were willing to accept the use of charge cards, but they were concerned about their legal rights if customers were not bona fide. They felt that 'guarantees' were safeguards for customers and banking institutions, but not for the SMEs. They also felt that the legal situation does not protect them, especially when transactions occur internationally – issues discussed by Zugelder et al. (2000: 253-270). They have little chance of redress if a transaction is not honoured. Singh and Slegers (1998: 30) said one of the SMEs they interviewed overcame this problem by confirming that the order had been placed by the person named on the credit card by telephoning them. Some mentioned attacks by hackers, scams, and junk email as other security concerns. Government has developed policy to protect SMEs operating online (Hockey 1999), but this policy has not yet proven its effectiveness in reassuring SMEs in this study. Security issues relating to online transactions need further government attention.

#### **7.4.7.2 Marketing issues**

SMEs adopt e-commerce when they believe their products can be sold across the internet.

A key finding of the 2002 *Yellow Pages E-Business Report* cited by SMEs for not engaging in e-commerce was the belief e-commerce would not work for their products or services. Business operators often feel that their business is not suited to the demands of e-commerce, that their business is of a local nature only, that e-commerce is too complex for their business, or that their business is of a nature that negates using e-commerce (such as a personal hands-on service) (Poon 1998a; Singh and Slegers 1998: 21-22; Yellow Pages 1998). Just over one quarter (28%) of the non-adopters gave these as a reason for their non-adoption. One successful dentistry practice considered adopting but rejected it, saying they did not want to advertise as they would have employ more staff if they attracted more clients.

From the literature, it was anticipated that most SMEs would develop a web site at least to have a presence on the web which they would use for marketing purposes. However, a surprising 20% of adopters had no web site at all, nor did they have plans for one. Of these, most relied on 'word of mouth' for their business, not seeing that they could use the web site as a marketing tool. Just on half (52%) used it as a marketing tool, while 40% used it as an information source to enquirers. Only about one in four (26%) saw it as an active selling tool.

Interestingly, there was little promotion of the web site once it was created. Adopter SMEs were asked how they promoted their web site; did they include the address on all printed materials such as emails, letter heads, invoices, receipts, business cards, brochures and so on, and did they register it with online search engines? Fewer than 30% included the web site address on all printed business materials (but one of these had painted his on the outside wall of his business in 50cm lettering!), while only 20% had registered with search engines. Not one knew of the importance of meta-tags to search engines. (Meta-tags are a form of hidden index terms used by search engines.) This was surprising, considering the high number of ICT-related SMEs in the sample, and the number who paid outside consultants to build the web site for them. It appeared that once they had made the effort to have a web site built, SMEs were then content to leave it to chance as to whether or not potential customers found it. Education of those engaged in developing online businesses needs to include attention to the importance of meta-tags. It appears that the technocrats are very capable in developing the technical aspects of online business models, but they omit the one feature that can assist their clients' web sites to be found among the millions of other web sites world wide, as well as tools and techniques for evaluating the effectiveness of their sites ( Barnes and Selz 2001; Barnes and Vidgen 2002: 114-126; Campbell 1998: 13); Houghton and Burgess 2003; Medeiros 2001; Zhang 1999: 47-51). Not all SMEs realise there is much that different elements of e-commerce can offer their business regardless of the type of business they operate.

## **7.5 Summary**

The demand aspect of diffusion of innovation was of limited relevance in explaining the adoption of e-commerce. This does not negate its effectiveness for other innovations, but for the adoption of e-commerce the factors were of little significance

in accounting for the differences between adopters and non-adopters. This chapter has looked at the similarities and differences between adopters and non-adopters to see if there were any special factors that distinguished the adopters from the non-adopters, or indicators that would assist in identifying those SMEs that were more likely to adopt e-commerce. It also looked at those issues that impinged upon SMEs in their adoption and post adoption. The most significant findings from this part of the study beyond the research propositions are discussed below.

### **7.5.1 Characteristics of the firm and its decision-makers**

The most significant factor that separated adopters from non-adopters was the personal characteristic of vision of the primary decision-makers within the organisations. This appeared in the literature as a minor consideration. Adopters all had the vision to see that e-commerce could enhance their business in some way. Although they understood the disincentives, for them perceived advantages outweighed the disincentives. They proceeded with the adoption process regardless of the cost in terms of resources required. Where they lacked knowledge they proceeded to find out. This they did in a number of ways. For example, one person educated himself by subscribing to a magazine series which gave him the technical knowledge which he felt he had lacked. Others approached family members, friends, colleagues, other SMEs, and even competitors. Only one used government sources. From the characteristics of decision-makers within the firm, it is possible to develop a profile of adopter SMEs.

They are visionaries. They are entrepreneurs, able to take calculated risks which would enhance their business. They are able to see beyond existing conditions to 'what might be'. Being visionaries they are innovative or aggressive in adopting innovations that will enhance their business. They are well educated, usually with a university degree. During acquisition of their degree they became computer-literate, and often became aware of the potential of e-commerce. Their higher education seems to have made them more flexible so that they can work in an area not necessarily associated with their area of speciality. If they are not computer-literate, they are willing to undertake the necessary training to become so. They do not see their education as complete. They are ready to engage in further education whenever they

see a need. They are willing to delegate responsibility or ownership of a procedure within the business to the most appropriate person/s, while ensuring that adequate resources are provided to enable the procedure or process to be implemented. They are willing to engage in on-going education and training for all personnel within the organisation.

SMEs in this study were well aware of the need to look after existing customers, to service their needs, and to respond rapidly to any queries they may have. If they maintain a brick-and-mortar establishment, traditional measures of customer relationship management (such as competence, courtesy, cleanliness, comfort and friendliness, helpfulness, care, commitment and flexibility) still apply, but the online environment demands others. Determinants such as accessibility, communication, credibility, understanding, appearance, and availability are equally applicable to e-commerce as they are in physical services. Consumer perceptions of what makes good online customer relationships are performance (how well an online retailer does in terms of meeting expectations regarding order fulfilment), access (internet retailer's ability to provide a variety of products from anywhere in the world), security (relating to perceptions of trust in the online retailer's integrity regarding financial and privacy issues), sensation (interactive features of the e-retailer's web site) and information (quantity and credibility of information provided by the online retailer) (Alwang 2000: 181; Caudron 2001; Cox and Dale 2001: 127-128; Greengard [2001]; Janda et al. 2002). This is closely related to the issue of trust in relationships.

The matter of trust was seen as of greater importance in the online trading environment than in traditional bricks-and-mortar establishments. On the matter of trust SMEs in this study agreed with previous researchers such as APEC (1999: 38-39), Castelfranchi and Tan (2002: 66-67), de Ruyter et al. (2001), McKnight and Chevany (2001-2002: 35-54), OECD (1997: 45), Reeves (2002) and Steinfield et al. (2002: 96). One way in which SMEs believed trust could be engendered was by personalising web sites with photographs and details of significant personnel within the organisation. A financial educator added stories of their staff's investments. They felt this added credibility to their site as it supported what they taught. In the online environment customers had higher expectations of service, so it is important that these expectations be met. Thus it is essential that emails be answered promptly. SMEs also felt it was important to be especially careful with the language used in emails, as

email lacks the [friendly] non-verbal cues of face-to-face transactions. Sometimes SMEs will need to respond to potential customers many times while the potential customer establishes a level of trust that results in his placing an order. Patience is the key.

Lack of awareness of the potential of e-commerce for their particular business was common. Most non-adopter SMEs had heard of e-commerce in various degrees, but often did not see how they could benefit from it in their particular business. A surprising number of studies show that SMEs in general are still largely unaware of what it actually means, what it entails, and the potential benefits to their particular business (*Ireland trains SMEs in e-business* 2002; Kotwica 2001; Lawrence 1997; Papazafeiropoulou 2002: 233-243; Quayle 2002: 1148, 1155; Walczuch 2000: 571). The issue of awareness was, according to the OECD (1998a: 16-18), one of the five most significant barriers to the adoption of e-commerce for SMEs, and showed up in the non-adopters in this study. Despite the volume of information available, this lack of awareness continues to be an important deterrent to the ready adoption of e-commerce. It behoves those organisations interested in seeing the rate of adoption increase to find ways to educate SMEs to raise their awareness, to make them aware of the information available, or to educate them specifically. This may entail concentrated efforts by trade, industry and professional associations, non-government organisations such as AUSe.NET, by governments themselves, or by any combination of these.

### **7.5.2 Resource implications**

Compared to large corporations, SMEs are typified by a lack of financial, human and organisational resources (Welsch and White 1981). SMEs in this study reinforced these findings. However, despite the lack of requisite resources, adopter SMEs ensured that resources – capital, personnel, technology – were all provided. The resource most often quoted as of greatest importance was that of time. SMEs are constantly pushed for time in the normal operations of their businesses. The adoption of e-commerce demanded time in all aspects of the process of adoption. To consider adopting e-commerce with all the implications it has for resource availability (especially for time as a resource) was a major consideration. Other resources needed

included capital, technology, and skilled personnel, which led to high cost, the second most quoted in importance. Non-adopters tended to over-estimate resources needed initially, but once SMEs had adopted they recognised that there was a high on-going cost to the provision of resources. New costs were incurred; there was not just a transfer of costs to different cost centres. Adopter SMEs in this study did not consider the cost or availability of resources when they decided to adopt e-commerce. They found the necessary resources as needed.

Education of staff of the firm and of support industries is essential to successful adoption. On-going education and training is a must.

The availability of infrastructure was of lesser importance than the reliability of services. Few understood the implications of what broadband could offer for their business, but a very high percentage were adversely affected by lack of reliability of telecommunications systems and services, of ISPs, web site developers, and associated technical assistance. SETEL recommends that government take the initiative in introducing broadband facilities specifically to home-based businesses - a segment of SMEs - to encourage the adoption of e-commerce. SETEL believes that once home-based businesses experience the benefits of affordable mid-range broadband they gain confidence, develop their own applications, and demand more services. This could well apply to other members of SMEs. Transparency of contracts and in a language that is understandable by non-technocrats were demanded, as well as having it all available at a reasonable cost. SETEL continues to raise these issues with government, but without any apparent resolution (SETEL 2001a; 2001b; 2003a; 2003c).

### **7.5.3 Return on investment or Cost benefit**

Traditional measures of return on investment have long been a factor in a firm's decision whether or not to adopt an innovation. Such means have endeavoured to calculate what return (or increase in revenue) a business can expect to obtain if it expends a certain sum. When such expenditure is in a form that is easily measurable (such as the use of different media for marketing), the business can, with a fairly high degree of certainty based on prior experience, realise which medium will be the most

effective in terms of return. Increased expenditure will give increased returns until it reaches a point where the level of return is less than the outlay (Colkin 2002: 35-39; D'Amico 2002: 13; Greengard 2000; Spiegel 2002: 26). This traditional means of calculating ROI has dictated the way business operates – until now.

The advent of e-commerce has clearly shown that traditional means of measuring ROI are ineffective in the online environment. Expenditure on the various elements of e-commerce can readily be measured, but not necessarily the return. For instance, a firm can install email into its internal operations, but it is difficult to measure the return in terms of time savings such as keeping staff informed, or in savings made because staff can make critical decisions more rapidly without having to wait for information, or in improvements in staff morale as through the improved communication they feel more part of the organisation. Nor can they easily measure the level of dissatisfaction generated by staff who forget the limitations of email and use language that can be insulting in its brusqueness. Do the advantages offset the drawbacks?

Few SMEs had considered the cost benefit of their adoption of e-commerce prior to adoption, yet post facto they saw the need for it. Indeed, some did not feel that it had been cost effective. Nevertheless, none wished they had not adopted. The principal reason for their decision to adopt had come from an internal motivation, not to fit external economic rationale. In this study, although the cost did not deter SMEs from adopting, the cost of adoption had usually exceeded expectations, and continued to be higher than anticipated with additional costs that were more than just a transfer of cost centres. They were strong in their recommendation that all SMEs when contemplating going online should first engage in a strategic assessment of how it should be incorporated into their existing business strategies, as well as that there should be some attempt to calculate the cost benefit.

Online businesses have found they need to develop a new means of calculating ROI. expenses associated with taking a business online are high, and can continue to be high – frequently even higher than remaining as a bricks-and-mortar establishment. Yet they continue with the adoption of e-commerce. However, SMEs have found that there is often not a corresponding high increase in revenue. The benefits to be gained, although always not in terms of increased revenue, but often in non-measurable ways,

outweigh the disadvantages of not adopting. Yet these benefits are difficult to codify or put a dollar value on. From this study it was apparent the SMEs saw their greatest ROI, not in dollar terms, but in:

Gaining and retaining a competitive edge over their competitors, and in being ahead of the field in their industry (#4).

These also are difficult to quantify, being more a matter of perception rather than reality. Unable to use traditional means of ROI which can measure revenue, SMEs need to use new non-traditional and not easily measurable factors of estimating ROI. New techniques need to be developed to enable SMEs to measure cost benefits. Techniques must be able to measure the competitive edge a business gains by going online, the benefits of reaching a greater geographical coverage, the enhancement of existing methods of doing business, and the strategic importance gained. Most important, what is the relative profitability of adoption compared with the required investment of time, capital, personnel and their skills, ICTs, and other infrastructure?

#### **7.5.4 Communication channels**

Traditional channels of communication did not explain how SMEs learned enough about e-commerce to adopt it. Close relationship with an initiator was a factor in a number of instances. It was anticipated that suppliers would play this role – but did not – perhaps because these SMEs did not have that type of relationship with their suppliers. Clients could play this role – this was the case in only two instances. The majority relied on prior knowledge or experience, or on communication with people they knew such as a friend, a family member, or a colleague, or on ‘normal publicity channels’.

There are many organisations (for example, NOIE, AUSe.NET, ACT Business Gateway) that have been actively promoting the benefits of adoption to SMEs. However, the channels of communication that they have used to promote e-commerce to SMEs have not been overly effective. If SMEs attend seminars and do not learn about innovations such as e-commerce, and if they belong to trade, industry or professional organisations where they do not learn about innovations, how can they learn about them? Why have they not used the government’s online sources of

information? What other communication channels can be effectively used? What implications do these findings have for those seminars sponsored by government and non-government associations? Have they been a waste of money? Has the scatter-gun approach been the cause of failure? Perhaps those who promote the potential benefits of adopting e-commerce should investigate other channels. It seems an industry-specific approach to education would be more effective than current non-specific means. There are obviously implications for the communication channels used and this could be the subject of further research. One channel that seems to be over-looked is that of the trade, industry and professional associations. Perhaps industry-specific seminars could be used to educate SMEs of the potential benefits of e-commerce.

#### **7.5.5 External influences**

Like other studies (Lawrence 1997; Poon 1998a; 1998) which found that customers and suppliers had played a small role in prompting SMEs to adopt e-commerce, the same result was found in this study. There was no push by outside agencies that prompted SMEs in this study to adopt. All the efforts by other agencies that had been directed to this end did not have the effect intended. The move to adopt had come largely from the SMEs themselves. As educated users of technology, they saw the potential of what online commerce could do for their business and made the decision without any push by outside agencies. The only exception was where financial institutions were involved.

Financial institutions had been an important trigger. This had not been highlighted in the literature, and needs to be followed up. Banks were not approaching SMEs with an altruistic view of improving business strategies for SMEs but rather for the benefits accruing to banks themselves. By having financial transactions conducted online, banks saved money significantly, thus they encouraged SMEs in this study to move to online banking transactions. Several SMEs indicated they had little choice in the matter, having been virtually forced into going online. Although online banking had disadvantages for SMEs (such as cost – there were considerable charges involved), for smaller businesses it offered considerable advantages such as saving time, improvement in cash flow, in being able to improve management of finances and also

in increased security (as staff no longer had to walk to and from the bank with large sums of cash).

It was not possible to measure the effect of banks, as this was not considered in the original questionnaire. The researcher became aware of it early in the course of the study, and then continued to include it as part of her questioning. However, although she attempted to fill the gaps by returning to earlier SMEs interviewed, she was unable to do so. Thus the influence of financial institutions was not statistically analysed.

### **7.5.6 Government initiatives**

Although not researched specifically in this study, government regulations proved to be an area of great disquiet among SMEs. The main constraints on adoption of innovation by SMEs are government regulations. Adhering to them was the one area frequently noted by the SMEs in this study that caused most heartburn, particularly the high cost of adhering to complex regulations relating to employment of workers. This is a double-barrelled cost. First there is the cost of compliance with the multitude of government regulations surrounding employment. These are in such a constant state of flux that SMEs had difficulty in keeping up-to-date with them, often depending on their trade, industry or professional association to notify them of changes. The second cost was that of actually employing workers. Workers are entitled to so many additional loadings that nominal salary and wages costs had add-on costs of 20-30% on top.

Major disadvantages are regulatory requirements, taxation policies, labour and capital cost, foreign government subsidies, and trade policies. Although most SMEs complained about taxation requirements, several SMEs admitted that the GST had actually improved their business operations – sometimes because it simplified the tax they charged, and at other times because it improved their cash flow situation as their clients paid their accounts more regularly in order to re-claim their tax inputs. A major stimulant to new business development and adoption of innovation is the removal of barriers to innovation through the establishment of an environment favourable to entrepreneurial activities.

The existence of governmental regulations provides disincentives and barriers to the production of innovation within a country in inverse proportion to the amount and severity of the regulations. (Herbig et al. 1994: 42).

In light of the experience of these few, governments need to cooperate to provide the legal and statutory regulation under-pinning which will ensure the fulfilment of electronic contracts regardless of the jurisdiction in which they originate. The policy has already been developed (Hockey 1999); it now needs to be implemented. Government can:

- Cultivate an environment conducive to adoption of e-commerce;
- Through taxation benefits encourage availability of venture capital;
- Promote the economic importance of SMEs' adoption of e-commerce;
- Continue to encourage innovation through commitment to higher education and publicly sponsored research;
- Promote more widely its many sources of information so that SMEs know of their existence; and
- Reduce the multiplicity of regulations and cost of compliance, especially in relation to employment and taxation.

## 7.6 Conclusion

In general, there appeared to be no one driving factor that propelled SMEs into adoption of e-commerce. As Quayle (2002: 1156) found, the decision to adopt was often dependent on a 'gut feeling' that it ought to be done rather than as the result of any rational decision-making process. There are, of course, other exogenous factors that impinge upon the adoption of e-commerce. The monopoly of Telstra (or duopoly of Telstra and Optus as one SME complained), for instance, allowed telecommunications providers to dictate prices and conditions of use of telecommunications to SMEs virtually without constraint. While this duopoly exists competition is restricted and there is little incentive to improve services to SMEs.

*Contribution to economy.* In this study, e-commerce improved total commerce for organisations, not replacing but rather supplementing bricks-and-mortar commerce for those organisations that adopted. Only two SMEs used it as a form of commerce in its own right, but several indicated they would have preferred to have replaced bricks-and-mortar completely. That they did not was because they had considerable resources invested in bricks-and-mortar establishments and also had an established customer base to whom they felt a certain loyalty. The Government has been pushing SMEs to adopt e-commerce because of its anticipated contribution to the economy. Results of this study supported this push, showing that in the employment sector alone those SMEs that had adopted e-commerce were contributing more to the economy than the non-adopters. Adopter SMEs employed considerably more than the non-adopters. For the most part, the SMEs that adopted e-commerce were larger than those that had not adopted. In addition, adopter SMEs employed a large number of contractors (over 87 by the 50 adopters) while non-adopters employed no contractors. Thus their contribution to the ACT economy through employment measures alone is of great consequence.

*Entrepreneurs.* Most of both the adopters and non-adopters considered themselves as entrepreneurs who take advantage of introducing innovations to improve the operations of their businesses. Perhaps this is part of the nature of being in business. Wheatley, President of the Berkana Institute, a charitable global foundation and professor of management in two graduate programs, says that as organisations presently exist in an era of rapid change and evolution, their leaders must constantly change adapt 'while ensuring that identity and values remain constant' (Wheatley 2002: 11). In other words, they must be constantly innovative. All owners/managers who indicated that they believed they were innovative in their business were all able to give examples of innovations (other than e-commerce) that they had introduced into their businesses.

*Age.* In congruence with other studies that found computer users tend to be younger than non-computer users, this study found that adopters of e-commerce also tended to be younger than non-adopters. This difference in age was statistically significant.

*Educational attainment.* The role of education was important – but did not appear in any of the literature as a significant factor. Again, in common with other studies that

found computer use increased with educational attainment, this study also found that the level of adoption of e-commerce was greater for those of higher education. A large number of adopters held university qualifications, even though their first level degree was often in a field totally unrelated to the one in which they currently worked. The difference between educational level of adopters and non-adopters was statistically significant.

*Resources.* Lack of resources was a constant among all SMEs, both adopters and non-adopters, but it did not prove a deterrent to adoption. Other factors over-rode the lack of resources. Once the decision to adopt had been made, the necessary resources were found.

*ROI.* Traditional means of measuring ROI was not a factor in the adoption decision. The desire to be leaders in the field was more important than traditional ROI. Not only did SMEs wish to match their competition, but they attempted to remain ahead of their competition by becoming early leaders in adoption of further developments or enhancements of e-commerce – such as the use of electronic shopping carts.

*Communication channels.* It was anticipated that if adopters were opinion leaders, they would be more likely to be members of their trade, industry and professional associations than the non-adopters. This, however, was not the case. Most of both the adopters and the non-adopters held membership in their trade, industry or professional organisations. Both groups attended seminars, largely those provided by their professional associations. Yet, they did not find out about the potential of e-commerce for their business from their professional associations. These communication channels were not their primary source of information about the potential of e-commerce. Were the seminars provided by their associations related to other aspects of their business – perhaps to taxation requirements or to legislative changes to employing staff? Is this – trade, industry and professional associations – a communication avenue that could be used more extensively to promote the potential benefits of e-commerce to industry-specific SMEs? In this regard there was no apparent significant difference between the adopters and the non-adopters. However, there were a number of other factors on which they differed greatly.

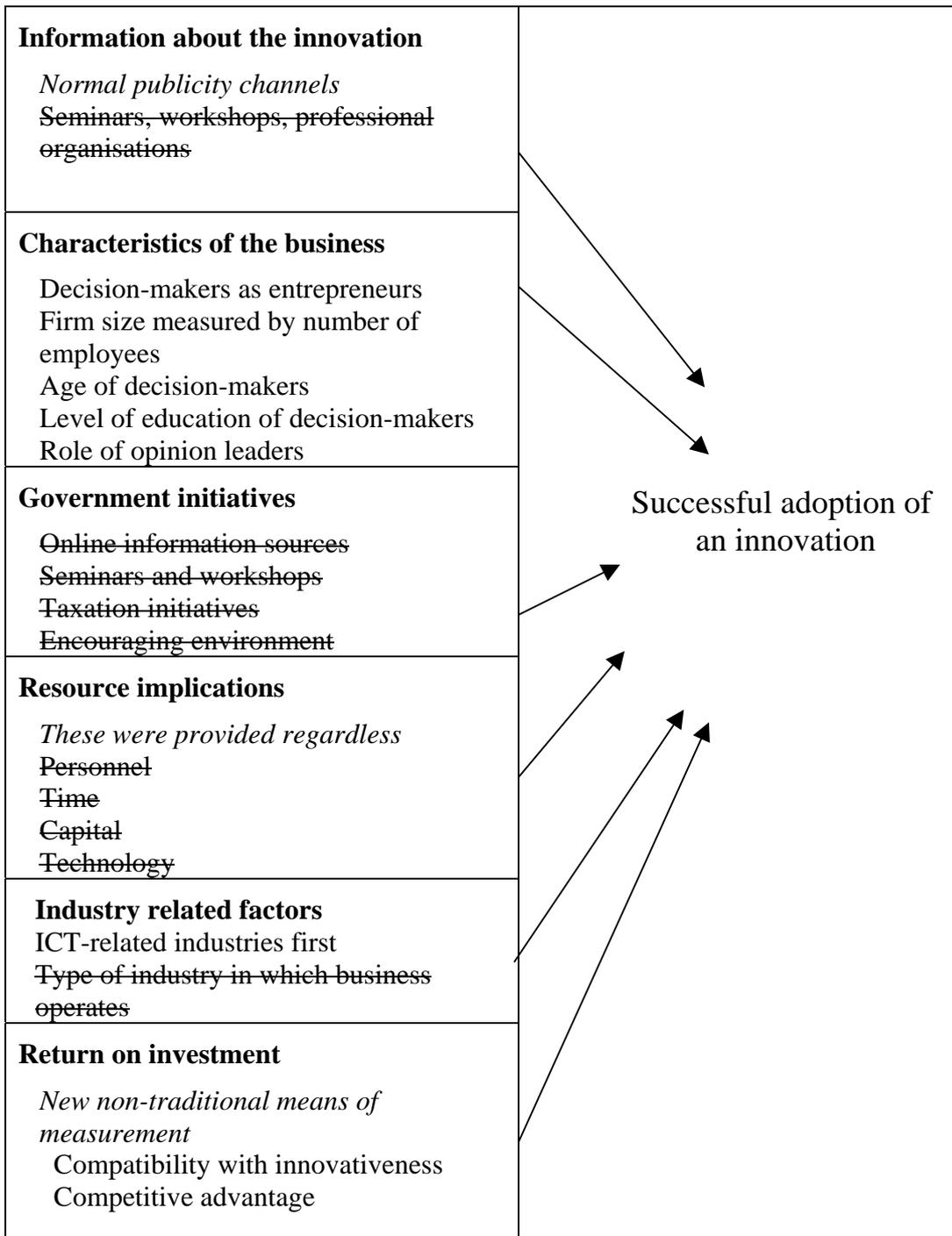
*Knowledge of e-commerce.* There was a significant difference in the knowledge of e-commerce between both groups. Those who adopted e-commerce seemed to

understand what they were undertaking and the potential it had for their business if they were to adopt e-commerce. This was to be expected; otherwise why would they adopt it? By contrast, the non-adopters had very limited understanding of what the term 'e-commerce' meant, and had even less of an idea of its potential for their business. Of the 40% of non-adopters that seemed to understand what e-commerce meant, half of them (four cases) planned to adopt it in the near future. This greater knowledge may have been a factor in their decision to adopt. Similarly, the lack of knowledge by the other 60% may partly explain their lack of interest in adopting e-commerce.

*Computer technology.* Because of the pervasiveness of information technology, and of computers in particular, it was assumed that most SMEs, both adopter and non-adopter, would use basic computer technology in their business, and would thus be able to use the most rudimentary levels of e-commerce. Although the level of technology was not considered in the interviews with the adopter SMEs, it was understood that they all used at least the basic level. Many of them spoke of the need to constantly upgrade their equipment to take advantage of new developments in the technology and what it could do for them. What was surprising was the low level of computer use in the non-adopters. Only 60% of them used a computer in their business; the remaining 40% did not even own one. This immediately restricted what they could do about adopting e-commerce.

It can be seen from this discussion that, apart from characteristics of the firm, factors of the demand aspect of the theory of innovation diffusion were of little relevance in explaining why SMEs adopted e-commerce. The factors that did help to explain the adoption are summarised below in Fig. 7.6.1.

**Fig. 7.6.1 Revised factors impinging upon adoption**



Note: Items in italics are new factors added to the original ones in Fig. 3.2.

Those not shown to be important have been crossed out.

Interestingly, over half of the adopter SMEs said that had they to start over again, they probably would not have gone about it any differently. Ten percent indicated they would have started earlier had they their time over again, if they knew then what they know now. From this, it can be seen that the adopter SMEs were generally quite pleased with the success of their adoption. As their e-commerce activities have become a more integral part of their business, so they have found that they could use further enhancements. Just having the basics of e-commerce has meant that they could see further potential, and so they have continued to develop the process.

We started with thorough planning, but what we did then no longer meets our needs. We are in the process of updating and re-designing it to make it more dynamic, to add a shopping cart and so on (#47).

There were a few regrets:

Now that we have a better understanding of our needs in relation to online trading, we would have done things differently (#36).

One SME indicated that if he had his time over again, he would probably go completely electronic, and he would not use employees to do the development (#15). Another said he would not have taken a shop-front to support the online business. It would have been far more cost effective to have remained completely online (#17). A third confessed that he would probably have chosen not to have grown so large (#3). His planned goals had been out-stripped by the success of his e-commerce enterprise.

One desire that appeared to have nothing to do with e-commerce came from one SME who said he wished he had previously bought the premises of the four shops in which he now operates when he was given the opportunity years ago. The prices of the premises are now beyond his capacity to pay, but nor are they available for purchase. If he owned them, he could do more to incorporate the wiring and cabling and reconstruction of office space that would enable him to be more efficient in his use of the technology than is permitted by his landlords. It is all part of the initial strategic planning. Growth can have unexpected consequences.

Banks and Telstra both received bad press, particularly for the lack of trust they engendered in SMEs. Trust was repeatedly mentioned as lacking in relationships, and yet SMEs indicated that there was a great need for it. They insisted that when other SMEs were looking for solutions to challenges or needs that they find 'someone you

can trust'. This was said in relation to banks, to ISPs, to web site developers, to consultants and to other sources of advice.

Basic advice offered to new potential adopters by adopter SMEs in this study was summarised by the luxury car dealer:

Ask if it is really going to benefit you, and is it going to be worth the cost. Don't just get the web site, etcetera; you will need the right equipment and many companies do not have the equipment to support e-commerce. Justify the expenditure. Do a cost benefit analysis.

Each year it gets cheaper and cheaper. Like any new technology that comes out, it is expensive in the beginning, but by waiting a short time, it becomes affordable. It is easy for people to get caught up in the hype. It is a time issue as to whether you really need it. I've seen many small companies like ours pour money into it, and get very little back for their expenditure. They get caught up in the hype – being promised to double your sales, increase your market share...

You probably need some sort of internet presence with some basic information about your company. Every business needs some sort of email access for employees...

Don't get caught up in the hype. It is easy to be persuaded that you need all the bells and whistles, but you don't (#13).

This chapter has analysed the results discussed in Chapters Five and Six in terms of the theory within which the research design was formulated. The next and final chapter, Chapter Eight, draws together the findings of the research. It briefly reviews the research process, discusses lessons learned from adopting e-commerce and makes recommendations for further research. It draws on the findings to indicate contributions to the theory that had not been highlighted in previous research. Finally it offers avenues for further research that appeared as gaps in research to date.

## **Chapter Eight Conclusions**

## 8.1 Introduction

It was Charles Darwin in his great work *The Origin of the Species* who said that it wasn't the strongest or most intelligent of species that survived, but rather the ones most responsive to change. AT IBM, we always plan to be responsive to change and our philosophy over e-procurement is very much part of that. And that is why we fully intend to be around for a very long time to come. (Stanton [2001]: 71).

This quote by Stanton of IBM in Britain sums up the situation with SMEs' adoption of e-commerce in the ACT. Those most likely to survive are the ones most responsive to change. With approximately one million SMEs in Australia, their contribution to the economy is considerable (ABS 2002: 393). The Commonwealth Government relies heavily on SMEs for continued growth in the economy, especially in the employment sector. Similarly, Government also sees e-commerce as providing the opportunity for SMEs to compete globally in a time of level playing fields, increased globalisation, reduced protection, technological advances, and growth of international corporations (Alston 2001a). The innovation of e-commerce has been seen to be what West (2001) calls a driver of economic growth. Electronic commerce through the internet offers almost unlimited possibilities for new efficiencies to both SMEs and their customers, but SMEs in this study are only just beginning to experience the possibilities available to them.

## 8.2 Review of the research process

This research was conducted at a time when there were unprecedented growth, change and development in ICTs and internet trading, with enormous pressures on SMEs to adopt e-commerce. Despite pressures, a large percentage of SMEs had been slow to adopt. A number of earlier writers (Damanpour and Damanpour 2001; Jensen 2001; Poon 1998a; Singh and Slegers 1998; Yellow Pages 1998) had shown that SMEs could appreciate a range of perceived benefits to the adoption process, yet they still failed to adopt. Other studies (Begin and Boisvert 2002; Farrell, Bradbury et al. 2001; Fergusson 2001) had also shown there were considerable disincentives to the adoption process, but it seemed apparent that there were other issues that were affecting SMEs

in their decision to adopt. This research focussed on investigating these other issues with a view to making recommendations that would improve the adoption rate.

The literature review of Chapter Two explored the position of SMEs, their importance to the economy, and their use of internet technology. It also reviewed the perceived advantages and disincentives to adoption, and characteristics of the organisations. Chapter Three continued the literature review from the point of view of the theory of innovation. It looked particularly at how the demand aspect of innovation theory applied to SMEs in their consideration of adoption of innovations as postulated by Brown (1981). From this, it was possible to formulate a number of research questions that drove the focus of the research. (Fig. 3.5.1 in *Chapter Three Section 3.5 Application of the theory* lists the research propositions. They were repeated in the *Introduction* to Chapter Seven as Fig. 7.1.2 for the convenience of the reader.)

The difficulty of identifying the population of SMEs within the ACT plus time constraints of the interviewees (reported almost universally in the literature) dictated the research methodology used. In-depth face-to-face interviews were used with those SMEs that had adopted e-commerce, and telephone interviews with those that had not yet adopted. The research methodology was described in detail in Chapter Four. In hindsight, it may have been preferable to have used face-to-face interviews with those SMEs that had not adopted as these SMEs were less forthcoming in their responses than those that had adopted. Perhaps if the interviewer had had the benefits of non-verbal cues in face-to-face interviews it would have been possible to obtain a greater depth of information. On the other hand, however, little may have been gained that was not gained from the telephone interviews.

Although there were initial difficulties experienced in identifying the population to be studied, this did not prove to be a limitation to the results. Analysis of the data from the sample selected indicated that the sample was representative of the total population of the ACT. As the total population is representative of the population of SMEs across Australia, the sample is representative of the total population of SMEs across Australia. Thus results from this study can be extrapolated to the whole population.

Analysis of the results of data collection was presented in Chapters Five, Six and Seven. Chapter Five presented the results of interviews with the non-adopters, and Chapter Six the results of interviews with the adopters. Chapter Seven considered the

results of both adopters and non-adopters in light of the theory which set the parameters for the research. It looked at both the research questions and research propositions from the point of view of the results of the study.

This final chapter draws together the findings of the research. It should be read in conjunction with Chapter Seven as both chapters together present a complete picture of the results. After briefly reviewing the research process, Chapter Eight notes lessons learned from adopting e-commerce. It draws on the findings to indicate contributions to the theory that had not been highlighted in previous research. Finally it offers some avenues for further research that appeared as gaps in research to date.

### **8.3 Lessons learned from adopting**

Adopter SMEs were asked what did they learn from the whole process. If they could have done things differently, what would they have changed? What advice could they offer to others contemplating the adoption of e-commerce? Questions 22 and 23 in particular were included in the interview schedule to discover if SMEs believed there could have been a better way to adopt e-commerce. It was anticipated that these two questions would highlight any strengths and weaknesses in the adoption process as well as indicate lessons learned by the adopters that had not been noted earlier in interviews. These questions were probably the most productive of ideas extracted from all people interviewed. All of the adopter SMEs had learned from their own experiences. They were unanimous in their desire to pass on the benefits of the lessons they had gained from adopting e-commerce. Only a couple felt that they had been online for such a short time that they still lacked so much knowledge it would be presumptuous of them to tell anyone else what to do. However, there was fairly general agreement on what should be done to achieve the best results, and the SMEs offered a range of suggestions on how the process of adoption could be improved.

#### **8.3.1 Research**

In common with recommendations from Marshall and McKay (2001: 202) and Farrell et al. (2001) and West (2001), the most common recommendation offered was that a business seeking to adopt any aspect of e-commerce should first do their research.

They must find out what was involved, either by reading, by talking to other people who were already engaged in it, by attending workshops and seminars, and/or by studying web sites of a range of their own business competitors. It was very important to know as much as possible about their own business, about the whole process, and how to go about implementing the process if it should be the right thing to do for them.

You must be informed (#5).

The sites of other SMEs in similar businesses provide an important source of information for SMEs considering adopting – as NOIE (2001) also indicated. These show what others have done, and give an indication of what is possible. They also can provide a model for adoption. SMEs must be able to make informed choices. SMEs can find out what is working for other businesses and consider adopting it for their own (OFTEL 2000). Without having some guidance on how to find out, most SMEs did not know where to start.

There has to be an easier way to get the information in the first place (#16).

The information is available, but SMEs needed help in knowing where to go, and in how to find out. They needed time in which to be able to find out, yet could not spare the time from the normal business processes.

### **8.3.2 On-going study**

As Anthony et al. (1999: 269) says, they need to invest in ‘knowledge utilisation’. It was important to these adopter SMEs that they be informed about all aspects of the potential of e-commerce for their business. Even if businesses contracted out the development of what was needed, they still needed to know what the contractor was doing. Otherwise they could get caught out by not having their needs adequately met. Or, through their ignorance, they could get locked into costly contracts that would not really be needed.

Many of them said there was an on-going need to keep up-to-date about changes and developments in the field. If necessary, SMEs should undertake courses (at Universities, Colleges, CIT, Community Centres, or even by correspondence) in areas in which they felt they lacked knowledge, especially in business studies. There was general agreement that the IT study that so many had completed as part of their earlier

education had been a factor in their readiness to adopt e-commerce, yet the technical knowledge was not enough. They also needed some business management knowledge if they were to continue to be successful in their business – a recommendation Cromie made as early as 1989 about small businesses generally (1989: 131). Two SMEs recommended the need to study some financial management or accounting so as to be in a better position to gauge the cost benefits from the process.

One SME (#15) who was very successful internationally strongly recommended that potential adopters should check out the registration of a domain name. It was important that the domain name reflect, not merely the name of the business, but what the business actually *does*. It should be one that will be found by a search engine. Potential adopters need to be aware of their intended audience – is it the local, national or international community? Remember that results with the country indicator – .au – are dropped by international search engines, so must not be included in registration of a domain name if a business intends to capture an international market; the business needs to register an international domain name.

### **8.3.3 Know your business**

The first step is to know their own business. Manning pointed out that the major single factor that affects a business' chance of success when going online is 'a knowledge of business – both your own and the unique business environment provided by the internet' (2000: 28). This was a view supported by a number of SMEs in this section of this study. They felt it was very important for SMEs to know what was expected from their business, where they were going, and what they planned to achieve. It is essential to know not only the business goals and objectives but also personal goals. Often times these were in conflict, but it was not until a person sat down and re-assessed what he was attempting to accomplish that he realised this.

Personal goals are as much a part of one's business goals as are the direct business goals (#8).

In light of this advice, it was gratifying to see that several of the adopter SMEs were integrating their personal goals with the operation of their business.

### **8.3.4 Does e-commerce suit your business?**

Getting SMEs online is a priority for the Commonwealth government (Alston 2001; NOIE 2000b). However its focus is not on recommending specific solutions or specific outcomes. What is right for one SME is not necessarily appropriate for another. By becoming informed SMEs are better able to judge if they need to adopt. Most SMEs in this section of the study (almost half) were greatly supportive of the need to be part of the process to keep up with other businesses, or to remain competitive.

It's an essential part of business, but you must know what you are doing (#22).

It will have benefits one way or another regardless of the type of your business (#27).

Yet, as Lawrence (1997: 595) also found, not all agreed with the sentiments expressed by #27. Several expressed caution, advising others to consider carefully whether their type of business really did need it. New potential adopters need to look at what they do, what are their plans for the future, and to consider if what they need can be provided by e-commerce. Just because others are using it does not mean they should adopt it. They should not get what they do not need. They need to decide if e-commerce is for them; it does not suit everyone.

If a business decides that it will adopt e-commerce at some time in the future, but for the present it will introduce manual systems, 'Don't do it!' warns #36. It is important not to introduce one system and then to change over to another later. There is a waste of resources as staff must learn first one way of doing thing and then another. It leads to confusion.

However, if SMEs decide to adopt e-commerce, then they need to do it properly. How can they ensure this?

### **8.3.5 Plan your strategy – conduct a needs analysis**

People – customers, employees and suppliers – are a firm's greatest assets (De Witt 2002: 38-40; Fingar and Aronica 2001: 131-136; Gates 1999: 255-257; Kalakota and Robinson 1999: 452-459; Kalakota and Whinston 1997: 401-402). All of these must benefit from adoption of any new process such as e-commerce. According to Tom Cutler, president and CEO of Ft. Lauderdale, Florida-based TR Cutler, there must be a

return generated from an online environment for its recipients as well as the business itself (De Witt 2002). The first step in assuring this is to plan.

Distributors need to ask themselves where the company is today, where it needs to go and what they should do to get there. Then they must proceed in a sequential, methodical fashion. Cutler explained that this typically involved having a gap or needs analysis performed by an independent consulting firm (De Witt 2002): 34).

When adopting any process, not just e-commerce, it is important to conduct a needs analysis as a starting point (Jennings 1994: 27). Bhide points out, however, that in-depth analysis is not the practice of entrepreneurs, so perhaps it is not surprising that SME entrepreneurs do not conduct in-depth strategic analysis of their plans before instituting them (1994: 150). In their study that evaluated the benefits of e-commerce to SMEs, Marshall and McKay (2001: 201-202) reported that the adoption of e-commerce had not formed part of the total strategic plan of the business. Yet, development of a business strategy in line with business goals is recommended by a number of business analysts (Baker 1999: 38; Calabuig and Jurado 2001; De Witt 2002: 36). In hindsight this was the most important step recommended by adopter SMEs in this study. They recommended first a preliminary assessment to see if e-commerce fitted their type of business, followed by a business strategy analysis - understanding the business and its objectives and strategies.

The lack of strategic planning had shown up as one of the major weaknesses of the process of adoption of e-commerce. Practically none of the adopter SMEs had attempted any major planning strategy before making the decision to adopt. They had, for the most part, seen the potential of e-commerce for their business or had special reasons for adopting (such as being seen as leaders in their field, or gaining a competitive edge), and simply gone ahead with the process, making decisions 'on the fly' as needed. Having failed to develop a strategic plan themselves, they were now in a better position to appreciate the many benefits that it would have brought them. They now saw it as an essential first step to the process of adoption. They pointed out that it is important to plan the adoption strategy, to prepare specifications and to organise the resources needed. Thorough planning and research is essential. SMEs need to work out what needs to be done, the order in which it should be done, and the resources needed to get it done. It is not enough just to have an internet presence. It must serve a purpose appropriate to the business (West 2001). Initiatives like a web site with transaction capability only make sense if they are considered and costed as

part of a strategic planning exercise for the business as a whole. SMEs need to plan aggressively how they are going to use technology and set business goals that use technology as a tool rather than as an end in itself. All senior members of the business need to meet to define goals and expectations and to develop a strategic plan that fits the defined goals and objectives.

The development of a holistic strategy ought to be a critical element when establishing an e-commerce enterprise. If the adoption of e-commerce is to be successful, any SME adopting it must integrate marketing, security, legal, regulatory, technology, and tax matters on both a strategic and operational level. Decisions on how and where the enterprise should operate will need to consider access to suppliers and customers, workforce, infrastructure, government support, and tax and regulatory issues. The strategy must also include steps to overcome internal inhibitors presented by organisational culture, available resources and staff attitudes, yet the actual process of adoption may be best to proceed on a sequential, step-by-step, modular basis. Each step would build on those taken previously. Perhaps the advice of Brown at the *SME E-Commerce Forum Taskforce in July 2002* should be adopted – that a taskforce be established to implement the recommendations that came out of that Forum (2002: 12). Reliance on the operation of normal marketplace mechanisms is unlikely to deliver the required results within the timeframe desired by government. It needs more (APEC 1999: 38-40; Begin and Boisvert 2002: 23-24; Brown 2002: 12-17; Daniel and Grimshaw 2002: 131-132; Daniel et al 2002: 261-263; Poon and Swatman 1999; Poruban 2000: 26-27; Quayle 2002: 1159; SeeBeyond Technology Corporation 2001: 12; Van der Poel 2000). A co-ordinated and highly focussed approach to addressing the key issues (as raised in this thesis) would enhance the rate of uptake.

### **8.3.6 Who should do the work?**

Adopter SMEs were unanimous in recommending that one person should not be given the full responsibility for the job. Nor should it be delegated to the IT section of the business. Most favoured the use of a team, a team that is representative of all sections of the business – one which includes members from management, from the financial department, and sales and marketing as well as from the IT department. Even if the task were to be contracted out to consultants, it should still be overseen by a team with similar abilities and responsibilities to those listed above. The contracting out of the

task was recommended by many, as long as over-sight was maintained within the business. It is important that whoever has the task of doing the development holds the trust of the SME team. The team must be assured that the developer can not only complete the technical details, but that it can meet management's goals and objectives, and that the finished job allows someone from within the business to maintain the work. This is particularly the situation with web sites. Web sites must be easy to maintain and easy to up-date without relying on costly contracts with consultants.

ISPs and web site developers provided the biggest headaches for many of the adopter SMEs in this study. It is essential to get 'the right developer', one that offers the best possible training and help, not only during the development stage, but in the post-development stage. They recommended checking the abilities of ISP support staff, that they understand the equipment and process they are supporting (even if this means phoning their helpdesk pretending one needs help). SMEs were consistent in recommending that a business needs someone who understands the 'technobabble' (#42) of outside consultants who often try to confuse SMEs with their technical knowledge. There needs to be a go-between. Unless SMEs have staff whose expertise is in the IT area, it is recommended that they hire outsiders to do the work. Even if SMEs do have internal staff who can do the work, it is important that it not be delegated to just one person. All staff must feel a sense of ownership about the process which can be missing if the team approach is not used.

As a tongue-in-cheek recommendation to other SMEs wondering how to go about the adoption process, one ambitious SME in this study said:

Choose our firm. We're experts in the whole process and can take you from where you are now – on antiquated technology – to the state of the art technology with no problems to you (#38).

A word of warning was offered by another, with several others recommending that development should be incremental:

Don't be conned by someone who says you need all the bells and whistles on your site. Most sites can be developed very simply initially. Start with the basics, and expand as you need to – with minimal costs. Do it incrementally (#17).

Their recommendation was to start simply – with email, an internet presence and online banking – to fit in with what Rogers (1995) calls 'trialability' – learning from the part of the innovation that has already been implemented before adding on another feature.

### **8.3.7 When it is completed...**

This is not the end. Once a business has adopted e-commerce, it must be accepted that it has an on-going process ahead of it. E-commerce involves constant change, enhancement and upgrading of systems to accommodate increased expectations within the company. Once customers get used to dealing with online businesses, their expectations are increased, and a business must be able to meet these increased expectations. Recommendations from the SMEs in this study included the following advice:

- Be prepared to have to reassess, to redevelop and to improve what was done initially.
- Be prepared to purchase upgraded technology as needed. Advances in technology often could not be accommodated by a business that initially had used the simplest system available.
- Be prepared to continue to develop. What had seemed adequate initially when the e-commerce side of the business was established may soon prove to be quite inappropriate or inadequate.
- Be prepared to have to continue learning. Remember change is ongoing and this will need ongoing learning. There is no end to the education that will be required.

## **8.4 Contribution to the theory**

Results of this study showed that the demand aspect of the theory of innovation diffusion as postulated by Brown (1981) was of limited relevance to explaining SMEs' adoption of e-commerce. The various factors of the demand aspect did little to explain the adoption process. The research propositions arising from the demand aspect of the theory did not hold for this study. That this theory held little relevance for the adoption of e-commerce by SMEs does not, however, negate its importance in explaining the adoption of other innovations. As Hahn and Schoch (1997) found was the case with electronic publishing, diffusion of innovation theory in relation to e-commerce helps provide an understanding of the cluster nature of the innovation and that its adoption is not a simple process. The adoption of e-commerce by SMEs is

contingent upon a number of other factors – factors which contribute to a theory of e-commerce. The theory of e-commerce is in an embryonic stage, so any contributions such as these help to flesh out that theory. These other factors include:

*Educational factors.* Education was of considerable importance to the success of adoption of e-commerce by SMEs in this study. Adopters in general were highly educated, with at least a first level university degree. During the gaining of their degree, they were exposed to computer technology and often to e-commerce. This exposure helped trigger their interest in and subsequent adoption of electronic commerce. If they had not gained these qualities through formal education, they were prepared to engage in self-education from whatever sources they could. Buckland (1995), Evans (2002) and Papazafeiropoulou et al. (2002: 243) had all linked education as a factor in successful adoption, while Pracy too had highlighted the need for it (2002: 6), but none of them had shown it as important as it proved in this study.

*Visionaries.* The profile of adopter SMEs showed that they were visionaries in their outlook to business. (The profile of adopter SMEs was described in greater detail in *Section 7.4.1 Characteristics of the firm and its decision-makers.*)

*Competitive edge.* Desire to gain a competitive advantage was one of the major factors that triggered adoption – a factor that Poon (2000) also found. Closely allied to the desire to gain a competitive advantage was the desire to remain ahead of competitors – to retain their competitive advantage. The desire to retain a competitive advantage contributed to their constant enhancement of elements of e-commerce whether it was merely moving from a static catalogue web site to developing an interactive site which allowed online ordering and payment of goods. They continued to be early adopters of enhancements of the innovation. Most innovations continue to develop after the initial adoption phase, and the same applies to e-commerce. New processes are constantly being developed, integrating internal and external processes to increase efficiencies within organisations (Bidgoli 2003: 46-408; Fingar and Aronica. 2001: 187-195).

*Role of financial institutions.* The role of banks in encouraging SMEs to adopt elements of e-commerce had not shown up as significant in the literature, but proved to be important in this study. Indeed, Poon and Swatman (1999) found that the uptake of financial transactions was particularly slow among SMEs. That financial

institutions had been instrumental in encouraging SMEs to adopt is an element of e-commerce theory that needs further investigation.

*Reliability of infrastructure.* Much of the literature had shown that adopter SMEs required the availability of infrastructure (Auger and Gallagher 1997; Grimes 2003; Keen 1999; La Rovere 1998; Rai et al. 1998), but few had highlighted the need for that infrastructure to be reliable in its provision of service. Once a business makes the decision to go online with any of its processes, it requires constant access to ICTs. These ICTs must be reliable and not fail at a critical stage in business processes. Jastrow (1999, 1999a, 1999b) has written extensively of the effects on trust when online services fail, with stocks and share prices falling dramatically, and businesses suffering irreparable losses. If SMEs are to compete successfully in the online marketplace, they must be able to depend on their ICTs. Yet, too often this did not happen. When the services are not working, the firm is losing business and money. Broadband services generally are more reliable, and they are available, but SMEs were not using them, largely because they were unaware of benefits that could be achieved from their use. Some process needs to be put in place whereby SMEs can experience broadband facilities so that they can appreciate them and demand them along with other reliable infrastructure. How can a business demand a service if it has not experienced it?

*Government intervention.* Rather than creating an environment conducive to adoption, Government initiatives are often an impediment to the adoption process (Parker 2000: 244-245; SETEL 2001a). Despite its best intentions and its provision of a large range of online support services, government has failed to service SMEs adequately in their quest to go online. Government needs to investigate ways in which it can facilitate the use of the many services it has made available. Methods currently being used are not proving effective in achieving their objectives.

Recommendations discussed below also add to the theory of e-commerce.

## **8.5 Recommendations**

A number of recommendations have resulted from this study. These recommendations are discussed below.

### **8.5.1 Communication channels**

The channels of communication that have been used to promote e-commerce to SMEs have not been overly effective. Perhaps those who promote the potential benefits of adopting e-commerce should investigate other communication channels. One channel that seems to be over-looked is that of the trade, industry and professional, associations. Although this was not investigated in this study, it seems that most of them organise regular seminars for their members. As these seminars are already industry-specific, perhaps they could be used to educate SMEs of the potential benefits of e-commerce, as well as how to go about adopting. Gagliardi (1995) found that use of group presentations was a useful means of developing favourable attitudes to an innovation where members of a group had a commonality of interests. The information is available; SMEs just do not know where to go to find it. Nor do they know what to look for. In order to assist them there could be a distillation of existing information in a form that is more readily accessible to potential adopters.

[While the researcher was writing up this segment of the thesis, she heard the executive director of the MHBA of the ACT speak on this same issue at a seminar. He pointed out that members of his association operate in great isolation, and are even more disadvantaged than other SMEs when it comes to finding out what they need to know. They know that the information exists, but they do not know where to go to find it. His recommendation to the Board of the MHBA was that they provide a one-stop information centre where members could find information relating to any aspect of starting up a business, operating it, marketing its products or expanding it. Relevant government regulations would be one item of information that would receive a high priority.]

### **8.5.2 Role of government**

Government needs to establish an environment that encourages the adoption of e-commerce. Rai et al. (1998: 103-104) point out that sponsorship from government institutions (in the United States) has played an important role in the diffusion of the internet in its early stages. Results of this research suggest that similar sponsorship by government here in Australia could greatly assist the adoption of e-commerce. It has

already been suggested that government could assist in this way to enhance the adoption of broadband by SMEs. In addition, Government needs to ensure policy issues that are more business specific such as adapting commercial business codes to suit this new environment, facilitating transborder data flows between businesses, establishing new means for engaging in contracts (such as digital signature authentication and certification) and improving the reliability of infrastructure to meet the quality of service demanded by business in this environment (OECD 1997a: 13; Sneddon 2000: 43-60). In light of the experience of these few, it is evident governments need to cooperate to provide the legal and statutory regulation underpinning which will ensure the fulfilment of electronic contracts regardless of the jurisdiction in which they originate. Policy that has already been developed now needs to be implemented and enforced.

Government bureaucracy acts as an inhibitor to innovation, a finding also reported by MacGregor and Vrazalic (2004: 18). Administrative agencies seem to be risk averse and slow to respond to applications for rapid responses. SMEs said they can wait up to a year before getting responses to submissions and requests.

One of the main constraints on adoption of innovation by SMEs are government regulations. Major disadvantages in competition are regulatory requirements, tax policies, labour and capital cost, foreign government subsidies, and trade policies. These inhibiting factors were also reported by MacGregor and Vrazalic (2004: 18) in their comparative study of SMEs in the Wollongong area and a region in Sweden. An important stimulant to new business development would be the removal or lowering of barriers to innovation through the establishment of an environment favourable to entrepreneurial activities. Government depends so much on SMEs for the continued expansion of employment within the nation that they need to do more to stimulate and encourage their successful continuance. Government needs not only to protect the rights of workers, but also the rights of SMEs to keep them viable and able to continue to employ workers. They need to provide an environment that encourages – not discourages – further expansion of this sector of the economy. Although this was not specifically targeted as an area of research in this study, findings from this study suggest that government regulations and constraints are doing more to constrain the expansion of this sector rather than the reverse. Perhaps this is an area that could benefit from further research.

### **8.5.3 Educational incentives**

Innovation also flourishes from being in or near the campus of a research university. Innovators are able to benefit from library facilities, exposure to state-of-the-art technical equipment, access to undergraduates – a cheap and technically skilled labour force – and a creative academic environment which encourages innovation. In the United States leading research universities have policies that facilitate technology transfer through close industry-university relationships. Indeed, in practical fields such as engineering or high technology, university academics have often taken the lead in establishing new firms to develop innovations (Herbig et al. 1994: 43-44; West 2001: 38-39). Universities are more than places for learning:

They are major economic influences in the nation's industrial life, affecting the location of industry, populating the nation's industrial life, affecting the location of industry, population groups and the character of communities. Universities are a natural resource (Herbig et al. 1994: 44).

Like Gates (1999: 408-415), West also supported the influence of education. He found that a 1% increase in expenditure on higher education increased the output of innovation by 11% (2001: 29). The Sacher Report (OECD 1997: 27) noted that the workplace – including schools and universities – is the most common source of computer awareness and transfer of skills.

The ACT is probably more favourably placed than any other comparable region in Australia to take advantage of its educational setting. It has a highly educated population, a high personal computer use, and at least one university with strong industry research links. Although it was originally a town dependent almost solely on government for the greater part of its employment, severe cuts in the number of government employees in the late 1980s and early 1990s have forced thousands of displaced government employees to seek alternative employment so that the number of people engaged in industry now exceeds those in the public sector (ABS 2003: 710-715; ABS 2003c: 36; ACT Government 2002a). They have been provided with an opportunity to develop innovative ideas that would have been 'stifled in the bureaucratic organisations' (Herbig et al. 1994: 41) in which they previously worked. A large percentage of them have moved to develop small businesses – to become what Drucker calls 'second career entrepreneurs' (1985: 196). Now the number of

people employed in government continues to decrease while employment by SMEs in the ACT continues to increase (ACT Government 2002a).

Universities need to be encouraged to work more closely with industry, and especially to make the results of research, such as this, known so that it can be applied.

Lack of awareness of the potential of e-commerce by SMEs generally and lack of the potential of broadband facilities suggest that government needs to be more proactive in taking an educational role. Government wants SMEs to adopt e-commerce. They provide a great deal of online assistance, but they are not reaching SMEs. Government needs to reassess how best to reach their targeted audience – perhaps by working more closely with educational institutions.

#### **8.5.4 Business incubators and industrial parks**

The development of business incubators and industrial parks provides an innovative approach to economic growth and development, and is to be further encouraged. The government-sponsored BITS Incubator Program has been successful in increasing the rate of new SME formation in the Australian ICT sector and encouraging links and networks between participants (Newton 2002; DCITA 2003). The ACT government has been quite pro-active in establishing similar business incubators such as the ones at Downer, Narrabundah and Erindale, as well as the technology park at Fernhill. In addition it has established its Knowledge Fund to assist the commercialisation of innovations, and has an acceleration fund to assist SMEs in growing their businesses. All of this has helped create an environment favourable to the establishment of new businesses and the adoption of innovation (ACT Government 2002). Most incubated businesses tend to remain in the region where they started, so business incubators are good for both local and regional development. The one SME in this study who operated from one of these ACT business incubators strongly recommended the benefits that could accrue.

#### **8.5.5 External consultants**

External consultants were hired by a number of SMEs to complete the adoption process or to install telecommunications and computer facilities, but they often failed

to do what was required of them. Part of the difficulty was that they did not clarify the needs of their clients, while part of it was the technical language they used to communicate. In summary, external consultants

- Need to be aware of strategic business needs of SMEs and not be dictated by own preconceptions of what is needed;
- Need to listen to SMEs;
- Need to use language that is understandable to SMEs; and
- Need to produce a final product that can be managed by the SMEs themselves and not require the return of consultants.

### **8.5.6 Infrastructure**

Reliability of infrastructure must be improved (Abell and Black 2001: 1, 6; Rai 1998: 97; Tan and Teo 1998). Businesses cannot continue to operate without reliable computer technology and telecommunications links. Their continued operations are dependent on ICTs. When these are not operating, businesses are losing time, customers, and money (Jastrow 1999, 1999a, 1999b). Lack of reliability of infrastructure was of great concern to SMEs in this study. Broadband facilities, part of the infrastructure available, too have been undervalued. Tiernan (2003) says:

It might be worth reminding lawmakers who are trying to jump-start the economy how much increased broadband adoption could do for e-business. After all, a number of signs suggest that broadband connections both increase the volume of goods sold and provide for more informed consumer purchasing behaviour (2003).

Large corporations cannot operate without access to broadband, and telecommunications companies need to ensure they have reliable access to it. SMEs with large volume transaction need it, and the few in this study that had it valued it. However, most SMEs in this study had not experienced it so were ignorant of the possible benefits it can offer. Efforts need to be made to educate SMEs to the benefits of broadband, and to make sure reliable access to it is available to them. As Gagliardi (1995) found, people cannot develop favourable perceptions of an innovation unless they have had exposure to that innovation.

## 8.6 Further research

Any technological innovation is multi-dimensional. One aspect of it cannot operate in isolation from a range of associated elements. E-commerce is but one aspect of a range of innovations that are inter-related and inter-dependent. This study looked at the adoption of e-commerce, not in isolation, but in association with its environmental setting, technological infrastructure, government constraints, communication channels, and resource requirements. Questions for further research developed around these associated elements. From both the results of this study and recommendations arising therefrom, there are several areas where further research could be of benefit to increased adoption of e-commerce by SMEs. These are briefly described below:

- Banking institutions and their policies re approaching SMEs about adopting financial transactions aspect of e-commerce need further investigation. This should perhaps be undertaken in the financial management area. The tension between convenience and risk of online transactions was not explored in this thesis, but needs to be further explored in light of the role played by banks in SMEs' adoption of e-commerce.
- Existing channels of communication are not being used. The effectiveness of current channels of communication needs to be reassessed, and new ones investigated.
- Governments at both State and Commonwealth levels need to work more closely with industry in developing and implementing policy. It is not enough to say the research has been done; government needs to work closely with industry when formulating the research so that they know the right questions to ask.
- Government, particularly at the Commonwealth level, needs to do more to encourage the expansion of the SME sector of the economy rather than its contraction. Research is needed to find out what governments can do to provide the right environment to facilitate this.
- The Commonwealth Government has launched a series of measures for promoting the adoption of e-commerce by SMEs, but the effectiveness of these measures needs to be analysed. It is not enough merely to provide

information online, especially when endeavouring to encourage businesses to go online.

- The effect of the availability of venture capital on diffusion of innovation and employment growth, particularly through the tax system, needs to be investigated.
- Having an IT background facilitated the adoption e-commerce in a continuous or modular way for a number of SMEs. Further research is needed to determine if having an IT background linked to the continuous adoption process would provide a successful model of adoption of e-commerce for other SMEs.
- Further research is needed to investigate what will be the effect on traditional bricks-and-mortar retailers if e-commerce continues to grow at projected rates. Such research will need to consider if traditional sales will experience a decrease in volume to offset the increase in electronic commerce. Adoption of an innovation typically improves an economy's overall productivity, but in the process can destroy existing systems (West 2001: 41).
- Mobile telephony is growing in usage because of the convenience it offers to users, but so is the cost of using it. Research could investigate if increased usage could be offset by decreased costs.
- Broadband potentially offers significant opportunities for SMEs in growth of their business, but research is needed to find out how SMEs can be made aware of the potential of broadband technology for their businesses.

## 8.7 Conclusion

This study set out to find out the issues that impact upon SMEs in the ACT when they consider adopting e-commerce. As the sample of SMEs studied was representative of the whole population of SMEs in the ACT, results can be extrapolated across the ACT. To the extent that SMEs within the ACT are representative of SMEs across Australia, then the results can be extrapolated to SMEs across the whole of Australia. Results of this study confirmed the advantages and disincentives that other studies had

reported, but there were others that although appearing in the literature were different in this study.

For instance, many other researchers had highlighted the concerns SMEs held about security issues when considering the adoption of e-commerce (Ah-Wong 2001: 103; Bidgoli 2003: 206-212; Castelfranchi and Tan 2002: 55-67; Ihlstrom and Nilsson 2001: 173, 176; Lawson et al. 2001; PriceWaterhouseCoopers 2000; Rebel and Koenig 1999: 101-102; Sudweeks and Romm 1999: 3-4; Whiteley 1999: 14; Yellow Pages 1998, 2002). In this study, results were different. SMEs indicated that although they were aware of security issues, these did not impinge upon their adoption decision. Once they had adopted e-commerce, however, it was a different matter. Security suddenly became a matter of high concern. Closely associated with security was the matter of privacy – privacy of transactions and of customers' details held by the firm. This also had not been seen as of importance prior to adoption, but certainly became a matter of great concern after adoption. Success with the adoption of e-commerce depended on what Cahners called 'a balancing act' (Zalud 1999: 110), where the disincentives were offset by focussing on the advantages to be gained from adoption.

The lack of infrastructure did not delay the adoption of e-commerce, but once SMEs had adopted, it was the unreliability of the infrastructure and technology – such as computers, ISPs, web sites, telecommunications links – that caused great concern. Once businesses are committed to using the technology, they must be able to depend on it for the continued existence of business.

Results of this study also indicated a number of other factors that had not been highlighted in the literature yet played a significant part in the adoption of e-commerce by SMEs. High on the list was the role of education. Evans (2002) had found close proximity to higher education institutions increased the number of SMEs adopting e-commerce, but he did not mention the effect of education on SMEs themselves. He saw the proximity as merely providing a highly skilled workforce for SMEs to draw upon. In this study, the role of education of the entrepreneurial SMEs themselves was important. All of the adopter in this study either held a university degree, or had taken steps to educate themselves. Although many of them were not working in the field in which they had gained their initial degree, it seemed as if the process of gaining the degree had given them the flexibility needed to apply their

skills and knowledge to a different field. The role of education needs to be recognised as being of greater importance to the adoption of e-commerce by SMEs. Associated with this factor was that of outside help. SMEs in this study clearly indicated that the availability of help from others was important to their decision to adopt. For over two thirds of them it was even more important when that help was free or cheap. Perhaps this is an area where the government could help. With funds already allocated for different projects associated with e-commerce, the government has could divert some of those funds to assist SMEs who are considering the adoption.

Perhaps the factors of greatest importance were characteristics of the SME themselves such as their innovativeness, their educational level, their readiness to take risks, and the relative youth of the primary decision-makers within the organisation. The number of years the business had been operating was also a factor. The longer a business continued to operate without considering the adoption of e-commerce, the less likely it was to adopt. It was as if once it became well-established, running the business successfully was sufficient. The owners/managers did not seek further enhancements of the business. The size of firms was also a positive factor in the SMEs' decision to adopt. Larger firms were more likely to adopt than smaller ones. It was difficult to know whether the firm was larger because it had adopted e-commerce, or whether it adopted because it was larger., but the ABS contends that 'as the number of employees increases, so does the likelihood that a business will use IT' (2004: 119).

Banks played a significant role in moving SMEs in this study to adopt some elements of e-commerce. This was not seen as a move to assist SMEs, but rather as a cost effective measure for the banks themselves. Regardless of the motive, the result was that a large number of SMEs first adopted online banking which led the way to their adopting other elements of e-commerce. The role of banks in this manner had not proved to be important elsewhere in the literature.

Another factor that showed up in this study was that of measuring cost effectiveness or return on investment of adopting e-commerce. Traditional means of measuring return on investment do not appear to apply to e-commerce. Perhaps this fits the pattern described by O'Neill et al. (1998: 110-111) that often adoption of innovation leads to inefficient outcomes. Other means of measuring ROI need to be developed. SMEs see the need to gain a competitive advantage and to retain that competitive advantage as more important. Other gains are made, but these too are difficult to

measure by traditional means. Such gains include increased productivity of staff; improved and faster communication, decreased costs of communication, improved customer relationship management (with customers having higher expectations that must be met), extended geographic coverage, broadened customer base, targeted marketing of a small specific sector of market, decreased costs of banking transactions, and improvements in cash flow management. All of these are part of the return of adoption, but as they are all closely inter-related, one factor cannot be measured in isolation of the others. Colkin (2002: 35-37) described some of the newer approaches currently being undertaken by a few companies to justify their IT expenditure. They are tightening the links between IT investment and its impact on a company's sales and profits. Spending should go up only when revenue is headed in the same direction or costs are going down. Up to the time of writing, Colkin noted that only 8% of companies are examining ROI through these 'complex valuations filters' (2002: 35-36). She described how one company divided its IT investments into three categories - one that lowers costs, one that increases revenues, and one that simplifies business operations. But there is no fixed calculation, and no certain mix of different variables used in each category. They are still finding out the best method of calculating. There is still a lot of subjectivity involved, but most companies are now developing methods of calculating ROI that fit in with the company's strategic business goals (2002: 36-38).

The outcome of this study should be of significant importance to other researchers, SMEs, professionals and education institutions, and policy makers interested in SMEs. If the recommendations in it are adopted by policy makers, particularly in government, then it would be of significance to the Australian economy as a whole. Unfortunately, this seems unlikely to happen. NOIE is the government department given the role of encouraging the adoption of e-commerce by SMEs in Australia. Each year it funds a Communication Research Forum where researchers present the results of their research. Discussion of papers at the Communication Research Forum (2003) indicated that there has been much valuable research publicised at the Forum that has failed to receive any recognition beyond the Forum. If government fails to heed the results of research supported by one of its major research venues, what hope is there that results of this particular research will be treated any differently?

The results of this study need to be made public, especially to those SMEs who participated, and to other stakeholders for whom there are implications as to what they can do to assist the furtherance of the process of adoption of e-commerce by SMEs in its contribution to the economy of the nation. Adoption of its recommendations would offer improvements to all SMEs in their move to e-commerce.

E-commerce is redefining commerce, transforming industries, and eliminating the constraints of time and distance. It is accelerating the marketing, buying and selling and delivery of products and services of all types. It is no longer glamorous or new or unique. Now the focus can move to basic business principles such as back office integration, return on investment, improving customer relationships, building trust and broadening market share. It is just plain old commerce – another channel to reach customers, dealers and suppliers. Someday all the jargon like B2C and B2B will disappear because these terms will blend together as e-commerce or e-business, covering all the electronic elements and methods of doing business. Then the ‘e’ will fall off too. After all, ‘we don’t say phone-business or handshake-business or store-business. It’s just business, all of it made possible or enhanced by technology’ (Betts 2002: 24). Or as Fingar and Aronica said, ‘E is dead’ (2001: xi).

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## **Appendixes**

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## **Glossaries**

A number of glossaries involving IT terms can be found on the internet. For example, see:

<http://webopedia.internet.com>

<http://www.cnet.comResources/Info/Glossary> (The Computer Network)

<http://www.delphi.com/navnet/glossary/> (Walt Howe and Delphi Internet Services Corp)

## **Abbreviations**

ABN	Australian Business Number. This is a number allocated to every business in Australia that registers with the ATO for taxation purposes. Its primary purpose is to facilitate the ATO's control of business payment of GST.
ABS	Australian Bureau of Statistics
ACA	Australian Communications Authority
ACR	Australian Capital Region
ACRDC	Australian Capital Region Development Council
ACT	Australian Capital Territory
ADSL	Asymmetric Digital Subscriber Line. A new technology permitting more data to be sent over existing copper telephone lines – a high end consumer product, not for business (according to Mark Johannsen Sales and Marketing Manager of Telstra Country Wide, at a Business ACT Seminar on 10 November 2003).
AeBN	Australian Electronic Business Network
AGIMO	Australian Government Information Management Office
Aide memoire	Term for interview guide or schedule (Minichiello 1995: 102).
Analog	Signal sent as a continuous wave, as opposed to digital which consists of discrete intervals (Clark 2000)
ANU	The Australian National University.
APEC	Asia Pacific Economic Co-operation
ACRDC	Australian Capital Regional Development Corporation
ASP	Application service provider. An ASP is usually a vendor that owns and maintains the hardware, software, telecommunications, and other technologies to support popular business applications such as enterprise resource planning.

ATM	Automatic Teller Machine
ATO	Australian Taxation Office
AUSE.NET	The Australian Electronic Business Network is an industry-led, not for profit, vendor neutral, independent, national initiative, established in partnership with governments across Australia to foster awareness of electronic commerce among Australian SMEs. This is to be achieved through a national network of AUSE.NET business partners who are delivering a series of three-hour business improvement workshops throughout Australia. ( <a href="http://www.ause.net/">http://www.ause.net/</a> )
Bandwidth	The rate of transfer of data through computer networks. (NOIE 1999: 61)
BAS	Business Activity Statement – used for assessing GST paid that can be recouped from the ATO.
Benchmarks	A benchmark is a standard for measuring and comparing the performance of like systems. For new product makers, a benchmark can provide important statistical information so products can be fine-tuned before their deployment. For end users, on the other hand, a benchmark can be used to compare the strengths and weaknesses of different products so that an informed decision can be made about system adoption. Benchmarks aid in estimations of scalability in terms of the number of users and/or transactions that a system can support, and system response times under various loads and hardware/software deployment platforms. (Jutla 1999)
B2B	Companies that provide Business-to-Business operations in electronic commerce.
B2C	Companies of organisations that focus on Business-to-Consumer operations in electronic commerce.
Bandwidth	Refers to the amount of data which can be transmitted in a fixed amount of time. The wider the bandwidth, the more data that can be transmitted (Clark 2000).
BITS	Building on Information Technology Strengths Incubator Program, a Commonwealth program that seeks to build the strength and competitiveness of Australia's information industries by increasing the rate of new SME formation in the Australian ICT sector and encouraging links and networks between participants.
Bps	Bits per second – transmission rate
Broadband	A data transmission whereby one wire can carry several channels. Cable TV and most communications between computers is by means of broadband (Clark 2000).

Browser	A software program that enables users to access electronic documents on the World Wide Web. The major browsers are Netscape Navigator and Microsoft Internet Explorer, but there are others (Clark 2000).
CAD	Computer assisted design
Carrier	A company offering telephone and data communications between points in a State or in one or more countries (Clark 2000).
CEO	Chief Executive Officer
Chambermail	A central e-commerce portal established in the ACT, accessible via a unique user ID and password, allowing business operators to control e-commerce business without special internet software, knowledge or skills (AUse.NET Workshops 2002).
CIT	Canberra Institute of Technology - The ACT version of Technical And Further Education (TAFE) of other States.
COLLECTeR	<b>Collaborative Electronic Commerce Technology and Research</b> is a joint venture by 22 universities around the world which, through a federation of research centres – one located at each institution, can provide both depth and breadth of expertise in electronic commerce ( <a href="http://www.collector.org/COLLECTeR.html">http://www.collector.org/COLLECTeR.html</a> )
Commercialisation	The generation of net wealth by a firm through the sale of products and processes incorporating new ideas. It requires the manufacture, distribution and servicing of novel products and processes with a subsequent benefit flowing directly to the company and indirectly to the whole economy (Block 1991)
Copyright	A method of protecting intellectual property that protects the form of expression (for example, a book or software program) rather than the idea itself (Clark 2000).
CRM	Customer Relationship Management.
CSG	Community Service Guarantee.
DCITA	Department of Communication Technology and the Arts.
DICX	Chemical Industry Data eXchange.
Diffusion	Innovations do not appear immediately over the entire earth's surface once they are perfected. Some groups of people and some places have immediate access to an innovation, some gain access later and some never do. Accordingly, the distributional characteristics associated with innovations change over time, rather than remaining static. The process by which such change occurs, that is, by which innovations spread from one locale or one social group to another, is called diffusion (Brown 1981: 1).

Digital signature	Digital signatures are a way of verifying that an authorised person has validated a transaction or a document.
DoIT	Department of Industry and Technology (Western Australia)
DSL	Digital Subscriber Line. Such lines use sophisticated modulation schemes to pack data into copper wires (Clark 2000).
EBPP	Electronic Bill Payment and Presentment – a facility that presents bills from a network on its site, permitting online bill payment. It is really a biller-direct system (Costanzo 2002).
E-business	Business conducted electronically as opposed to the traditional face-to-face business methods. It includes any process that a business organization conducts over a computer-mediated network. Such processes include production-, customer-, and internal or management-focussed business processes (Mesenbourg 2000).
ECI	Electronic Computer Interface
EDI	Electronic Data Exchange is computer-to-computer communication of business messages in standard codes and formats. These systems allow direct, automatic and instantaneous input of messages to transaction processing systems without human re-keying. This system, used extensively for contracts, invoices and ordering between component suppliers and manufacturers, is being extensively integrated within the electronic commerce models converging around the Internet. (NOIE 1999: 61)
E-commerce	Electronic commerce is business communicated and transacted over networks and through computer systems. The most restrictive definition limits e-commerce to buying and selling goods and services, and transferring funds through digital communications. However, e-commerce also may include all inter-company and intra-company functions (such as marketing, finance, manufacturing, selling, and negotiation) that enable commerce and use electronic mail, EDI, file transfer, facsimile, video conferencing, work-flow, or interaction with a remote computer. E-commerce also include buying and selling over the World Wide Web and the internet, transferring electronic funds using smart cards and digital cash, and doing business over digital networks. (NOIE 1999: 61)
EFTPOS	Electronic Funds Transfer at Point Of Sale
Enterprise portals	Still in their infancy, these present a ‘cyber-desktop’ providing the content, interaction with co-workers and access to software such as groupware, email, workflow, database applications and mission-critical interface (Bilderbeek [2001] ).

Entrepreneurs	An entrepreneur is one who manages a commercial enterprise with a high degree of innovation and risk ( <i>Webster's encyclopedic unabridged dictionary of the English language</i> ). Drucker defines an entrepreneur as one who 'always searches for change, responds to it, and exploits it as an opportunity' (1985: 42). Thus entrepreneurs can be seen to be slightly risk taking in their attitude.
ERP	Enterprise Resource Planning
ETAG	E-commerce and Telecommunications Advisory Group
EU	European Union
Extranets	The extension of a company's intranet out on to the internet, for example, to allow selected customers, suppliers and mobile workers to access the company's private data and applications via the World Wide Web (NOIE 1999: 61). A network where inter-corporate networking is involved (OECD 1997: 40).
Firewall	Firewalls are complex software that inspect the data that passes through them, enabling firms to hold information confidentially. They act as a filter between a corporate network and the internet that keeps the corporate network secure from intruders but allows authenticated corporate users uninhibited access to the internet (Kalakota and Whinston 1997: 124)
Focussed or semi-structured interview	Those interviews in which the researcher uses an interview guide which is simply a list of topics to be discussed with no fixed ordering or wording of questions. The content of the interview is focussed on the issues which are central to the research questions (Minichiello 1995: 103).
GBP	Great Britain Pound
GDP	Gross Domestic Product
Gem	Government Electronic Market (an initiative of the Western Australian Government)
Globalisation	The breaking down of political borders and trading barriers in international commerce. A broader concept than internationalisation, referring to the mix of factors that have led to the development of global or worldwide, as opposed to local perspectives (Clark 2000).
GRPS	Global Relative Positioning Satellite
GST	Goods and Services Tax – a comprehensive tax that removes all other taxes, but puts 10% on all items sold (with a few exceptions).
HECS	Higher Education Contribution Scheme

Horizontal portals	offer a wide variety of content and services to a range of users. 'Lifestyle' mega-portals such as Yahoo and America Online aggregate content and present it in the form of 'channels'. In addition, they provide a multitude of services, including personal services (address book, chat, email, organiser); arts and entertainment (purchasing books, CDs); business and finance (share prices, banking); news (international and regional); sports (scores, betting); lifestyle (gardening, health); shopping (airline tickets, cars); research and education (encyclopaedias, maps); science (technology briefings); and corporate information (investor relations, white papers). (Bilderbeek [2001] )
HTML	Hyper-Text Mark-up Language – a programming language used to present web pages.
ICTs	Information Communication Technologies
Innovation	Is a broadly used term that may encompass a new product, new technique, new practice or a new idea. 'Contemporary examples include space travel, transistor circuitry, cable television, the bank credit card, a new brand of toothpaste, or clothing fashions. Further, the fast food outlet, colour television or bicycle may be an innovation in a Developing or third World nation, even though they would not be considered such in the United States' (Brown 1981: 1).
Intellectual property	Intangible property that results from the individual or from the firm's creative activity (Clark 2000).
Internationalisation	Achieving international agreement or standards in a particular area (Clark 2000).
Interview guide	When used in qualitative research it consists of a list of general issues, topics, problems or ideas that the researcher wants to make sure are covered by each informant. It is used to jog the memory of the interviewees. .. It is also known as an interview schedule or an aide memoire (Minichiello 1995: 103).
Intranet	Private networks supported by the internet protocol, but operating wholly or partly within a close corporate or inter-corporate communications structure for the exclusive use of employees and specified outside parties (OECD 1997: 40).  When internet technology is used within the bounds of an organisation, the network is referred to as an intranet (Eder 1998).

Intranet	The term ‘intranet’ was coined by Steven L. Telleen in 1994, who along with his colleagues at Amdahl Inc., was studying the potential of web-based applications for performing internal business functions in an organisation [Nambisan, 1999 #81: 88]. It refers to the use of widely used internet protocols and technologies to create a network-based infrastructure within an organisation that delivers enterprise services such as messaging, directory, calendaring and scheduling, conferencing, workflow and email, as well as transaction processing. The integration of these services is beginning to allow valuable information sharing across different parts of an organisation.
IS	Information systems
ISDN	Integrated Services Digital Network. ISDN is an international communications standard for sending voice, video, and data over digital telephone lines or normal telephone wires (Clark 2000).
ISP	Internet Service Provider
IT	Information Technology
ITOL	Information Technology Online Program aims to accelerate the adoption of business to business e-commerce solutions, especially by clusters of small business (Alston 2001b).
Knowledge Management	Methods, procedures, and systems used to collect, record, preserve and protect the knowledge and experience of an organisation so that they can be fully used on problems and opportunities (Clark 2000).
Kps	kilo bytes per second
Large business enterprises	Those businesses with 100 or more employees unless engaged in Agriculture.
Metadata	Metadata allow for less visible groupings of the information resources based on function, subject, or any other metadata element or combinations, and determine the scope of access points to that information. Really a form of hidden indexing in internet-based websites (Clark 2000).
MHBA	Micro and Home-based Business Association (ACT)
MRO	Maintenance, repair and operations
Medium businesses	Those with fewer than 100 employees, but more than nineteen.
Micro businesses	Businesses that have fewer than five employees.

Model	A set of inter-related assumptions drawn from life/experiences that can explain a given set of circumstances.
MS-DOS	MicroSoft – Disk Operating System
NOIE	National Office for the Information Economy in the Department of Communications, Information Technology and the Arts.
OECD	Organisation for Economic Co-operation and Development
ONIX	The Online Information Exchange which has developed an international standard for descriptive and administrative metadata for books to facilitate their sale online (Medeiros 2001).
PBS	Pharmaceutical Benefits Scheme
PC	Personal computer
Portals	This describes web sites that are the first stop or entrance to the internet. These anchor sites offer a variety of services and there are different types of portals, which can be broadly divided into horizontal and vertical (or vortals). By adding categorised content and services to their search capabilities, portals have emerged as the most effective way to cope with the information overload brought about by the internet. Thousands of sites aim to be a portal of some kind, ranging from mega-portals such as Yahoo! to specialised enterprise knowledge portals (Bilderbeek [2001])
Protocol	To successfully complete e-commerce transactions, the involved parties must execute a sequence of steps, called a protocol (Subramanian 1999).
PSP	Professional Services Partner, a company which is contracted to provide its customers with services for network planning, design, implementation, and operation.
QUT	Queensland University of Technology
ROI	Return on investment
SBC	Small Business Coalition
SBIC	Small Business Internet Commerce – the use of internet technology and applications to support business activities of a small firm - how Poon differentiates e-commerce for small businesses (Poon 1999).

SBPD	Small Business Professional Development Best Practice Programme Project (Queensland)
SEC	SEcurities Commission
SET	Secure Electronic Transactions (Phillips [1998]: 114-118).
SETEL	Small Enterprise TELEcommunications, a non-government, non-profit organisation whose primary aim is to support SMEs in advancing the telecommunications and e-commerce interests of Australian small businesses.
Small businesses	Those with fewer than twenty employees. Small business in Australia is important as one million small businesses account for 97% of all private sector businesses and 50% of all private sector employment (ABS 1998)
SMEs	Small and Medium (business) Enterprises - those that have fewer than 100 employees.
Smart cards	Credit cards containing an integrated circuit that gives it a limited amount of 'intelligence' and memory. Smart cards are being used for identification and to encode information such as a person's medical history (Gates 1999:249).
SSL	Secure Socket Layer – a method of protecting an online site (Phillips, [n.d.]).
STD	Subscriber Trunk Dialling
SWIFT	Society for Worldwide Interbank Telecommunications. A system that helps ensure secure online payment (Fariselli et al. 1999: 263-269).
TARGET	Trans-European Automated Real Time Gross Settlement Express. A system that helps ensure secure online payment (Fariselli et al. 1999: 263-269).
Technology	A technology is a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome. A technology usually has two components: (a) a hardware aspect, consisting of the tool that embodies the technology as a material or physical object, and (b) a software aspect, consisting of the information base for the tool (Rogers 1995).
Triangulation	Triangulation is the combination of methodologies in the study of the same phenomenon, usually to validate the findings of one of the methodologies.
TSI	Telecommunications Service Inquiry (commonly referred to as the Besley Inquiry).
UNCITRAL	United Nations Commission on International Trade Law

URL	Unique Reference Locator used as an online address. It usually begins with the letters 'http', but if it is a secure site, it will start with 'https' (Ah-Wong 2001).
USO	Universal Service Obligations.
VAT	Value Added Tax. A tax used in European countries that is similar to the Australian GST.
VC	Venture Capital
Vortels	Vertical (niche) portals. These are entrances to the internet offering a more specialised, and thus more limited service to a select group of users. Vertical portals, also referred to as vortals, are especially relevant in the business-to-business sphere, with the chemical-trading hub Chemdex being a good example. A vortal functions as an internet gateway for traders and provides content and services underpinned by a specific goal; buying and selling specific products. In addition, a vortal will provide links to other services such as currency conversion and credit checking (Bilderbeek [2001]: 56)
WAP	Wireless Application Protocol. It has become almost the default standard for getting internet data to cell phones, although it does have security faults (Du Bois 2000).
WECAN	Wide Electronic Awareness Network A European Commission funded project to investigate the existing awareness models in e-commerce being used across Europe considering examples of best practice in various countries. It lasted from September 1998 to September 1999 (Papazafeiropoulou et al. 2002).

***Appendix Two***  
***Businesses by Category***

## ***Types of businesses***

Interviewees were asked to describe how they saw the type of business they operated. The terms used are the ones they chose. From these they were then categorised into the ABS categories.

1. Architectural drafting and design
2. Automotive – mechanical repairs
3. Building services contractor - Commercial cleaning
4. Community recreation & fitness
5. Construction – roofing contractors
6. Consulting – international trade, anti-dumping, preferential tariffs
7. Consulting – professional services (also offer training and manufacturing)
8. Consulting engineering – civil and structural
9. Design agency – print, media and web-based
10. Education – multi-media development of websites and CDs
11. Educational – financial and professional training
12. Engineering – engine sales and repairs
13. Entertainment – event production, entertainment agent
14. Financial – computerised accounting, tax agents, financial planning
15. Financial services - education
16. Health care products - Pharmaceutical services
17. Health services – medical services – general practitioners – care providers
18. Home services – landscape gardening – garden maintenance
19. Hospitality – recreational
20. Hospitality - Restaurant
21. Import business – installation and distribution of pay TV (Australia wide)
22. IT Consulting services
23. IT consulting; IT retail – software distribution
24. Paramedical – podiatry
25. Real estate & property management
26. Research funding
27. Retail – automotive – motor dealer
28. Retail – automotive – motor cycles

29. Retail – bridal fashions, wedding one-shop package
30. Retail – fishing tackle for recreational, tourism and commercial operators
31. Retail – motor vehicles – brakes and clutches
32. Retail & Wholesale – wine industry
33. Retail (and manufacturing) – floral arrangements
34. Service industry – air-conditioning and refrigeration
35. Service industry – photography
36. Tourism – retail
37. Wholesale food distribution
38. HR (Human Resources) and Recruitment services

***Appendix Three***

***List of trade, industry and professional associations in the ACT***

### ***List of trade, industry and professional associations in the ACT***

The list of trade, industry and professional associations in the ACT includes:

- Australian Hoteliers Association;
- Australian Institute of Architects;
- Electrical and Engineers Association;
- Housing Industry Association;
- Australian Library and Information Association;
- Masters Builders Association;
- Motor Traders Association;
- Newsagents Association;
- Pharmacy Guild;
- Printing Industries Association;
- Professional Engineers, Scientists, and Managers;
- Real Estate Institute;
- Australian Federation of Travel Agents;
- Trucking Association.

In addition to these associations, there are a number of related organisations that are not industry specific, namely,

- the three Chambers of Commerce (the Chamber of Business and Commerce in the ACT, the Chamber of Women in Business in the ACT and the Multi-Cultural Chamber of Commerce), and
- the four district Traders' Association – Mitchell, Fyshwick, Hume and Phillip.

*Appendix Four*  
**Telephone Interview Schedule used with Non-Adopter  
SMEs**

## Telephone interviews' Template

**Name of Company:**

**Name of Interviewee:**

**In electronic commerce** (or e-commerce), business is communicated and transacted over telecommunications networks and through computer systems. It may include functions such as marketing, finance, manufacturing, buying and selling goods and services, electronic mail, EDI, file transfer, searching the internet, or transferring electronic funds, using smart cards and digital cash, and doing business generally over digital networks. I understand that you do not use any of these in your business – is this correct?

1. What does the term e-commerce mean to you?

.....  
.....

2. If you're not interested in adopting e-commerce, why not?

.....

3. Which disincentives have held you back from using e-commerce in your business?  
(Tick all that apply.)

*Time/knowledge issues*

- a.         I did not know enough about what is required.
- b.         I did not have enough time to find out what is required.
- c.         I had too much else to do.
- d.         I did not feel properly prepared to adopt it.
- e.         I would have had to provide on-going training of staff to keep up-to-date with what is happening.
- f.         I planned to wait until I see others succeeding.

*Cost, security, privacy*

- g.         It cost too much to get started.

- h.     [ ]     There was not sufficient financial return to justify outlaying the cost of the investment.
- i.     [ ]     I was concerned about the security of customers giving credit details over the internet.
- j.     [ ]     It is difficult to guarantee the privacy of my customers.
- k.     [ ]     Hackers could get into the data files of my business.
- l.     [ ]     I could not be sure that contracts from other jurisdictions will be honoured.

*Technological issues*

- m.     [ ]     It was difficult to locate suitable business models and technologies needed for e-commerce.
- n.     [ ]     Access to the internet was too slow.
- o.     [ ]     I was waiting until broadband facilities were available to my business.
- p.     [ ]     Telstra's new wire-less technology, general packet radio service (GRPS) for mobile phones, was not yet proven enough to substitute for broadband facilities.

*General issues*

- q.     [ ]     It was too impersonal.
- r.     [ ]     My customers did not want it.
- s.     [ ]     It did not suit my type of business.  
My products were too specialised to be sold over the internet or I sell a service , not a product.
- t.     [ ]     I did not see it as a real distribution channel.
- u.     [ ]     My managers lacked the vision to appreciate the advantages offered by the technology.
- v.     [ ]     Anything else? (Please give details.)

.....

**4.** Has your bank approached. you in any way? .....

**5.** Which bank is your commercial bank? .....

6. If you considered using e-commerce, what obstacles or hurdles did you encounter in the process – web site development, finding right people for right job, difficulty in finding information needed, cost of implementation, bank charges for internet payment gateway transactions, lack of widespread use by customers and suppliers, staff concerns, language used by ISPs?

.....

7. Do you have a computer? Yes / No

8. Which of the following benefits brought about by e-commerce do you think could possibly be achieved by your business? (Tick all that apply.)

1.  Time savings because processes automated
2.  Increased sales
3.  Reduced production costs
4.  Improved business efficiencies
5.  Improved communication (with clients or staff or suppliers)
6.  Improved staff efficiencies (such as fewer staff)
7.  Online banking or other financial operations
8.  Savings in procurement
9.  It could offer a competitive advantage.
10.  It could save the business money.
11.  It could lower the cost of individual transactions.
12.  It could be a more efficient way for my customers to pay accounts.
13.  It could expand the geographical coverage of my customer base.
14.  It could reduce the number of staff needed as many processes (such as acknowledgment of orders) can be done automatically.
15.  By selling direct to customers I could by-pass the middleman.
16.  It could make it possible for me to deliver goods more quickly to customers.
17.  The company could tailor services to specific sections of its market.
18.  It could be a more efficient way for me to pay invoices from suppliers.

19.  It could reduce the need to hold large quantities of inventory.  
 It could be an important way to exchange information with:
20.  customers
21.  staff
22.  suppliers.
23.  It could improve customer relationships.
24.  It could reduce input costs.
25.  By ordering online, I could get stock delivered more quickly.
26.  It could improve the supply chain for my products.
27.  Anything else? (Please give details.)

.....

**9. Any non-tangible benefits –**

- Improved customer communications,
- Convenience to customers,
- Development of reciprocal links,
- Being seen as progressive or up-to-date?

.....

**10. Do you consider your owners/managers are entrepreneurs (that is, people who are slightly risk taking in their attitude)? Do the owners/managers attend seminars where they have been exposed to new ideas?**

.....

**11. Are the owners/managers of your business the early adopters of any new service? Have they initiated other innovations into their businesses? What were they? Are they progressive business thinkers seeking any means possible to ensure the success of their business? Can you give me an example of some innovation they have incorporated into their business?**

.....

.....

.....

**12(a).** Do you belong to business organisations such as the Chamber of Business? What trade, industry, or professional organisations do you (or your business) belong to?

.....

**12.** Do your owners/managers attend seminars where they are exposed to new ideas?

.....

**13.** How long has the business been operating (bearing in mind that 80% of all new businesses fail within the first five years)?

.....

**14.** What type of business would you describe this as – financial, construction?

.....

**15.** Which segment makes up the bulk of your clients – single individuals, investors, other small/medium businesses, suppliers, government departments,...?

.....

**16.** How many EFT (equivalent full time) workers are there in the business?

.....

**17.** What **advice** would you offer to anyone else seeking to adopt e-commerce?

.....

**18.** In what age group are the owners/managers of your business?

[ ] Under 25 years?

[ ] 25-35 years?

[ ] 36-50 years

- 51-65 years?
- Over 65 years?

**19.** What is the highest educational level of the owners/managers of your business?

- Finished high school (Year 11 or 12)
- Completed an apprenticeship (Name it) .....
- University degree (Name it) .....

**20.** If I needed more information, would you be willing to speak with me again?

.....

Thank you for your time and patience.

***Appendix Five***  
**Interview Schedule used with Adopter SMEs**

## Interviews Template

Name of Company: . . .

Name of Interviewee: . . . . .

**1. In electronic commerce** (or e-commerce), business is communicated and transacted over telecommunications networks and through computer systems. It may include functions such as marketing, finance, manufacturing, buying and selling goods and services, electronic mail, EDI, file transfer, searching the internet, or transferring electronic funds, using smart cards and digital cash, and doing business generally over digital networks. Do you use any e-commerce in your business? (Tick all that apply.)

1. [ ] Communicate via email
2. [ ] Have a company website
3. [ ] Look online for product/service information
4. [ ] Obtain reference or research information
5. [ ] Allow customers to order online
6. [ ] Allow online payment of orders by customers
7. [ ] Communicate with suppliers online
8. [ ] Order stock online
9. [ ] Pay business accounts (e.g. wages) online
10. [ ] Search for government information
11. [ ] Use EDI (Electronic Data Interchange) for any aspect of your business
12. [ ] My business does not use any e-commerce activities
13. [ ] Anything else? (Please give details.)

**2.** Have you automated any of your functions – such as using autoresponders to email? If so, what ones?

**3.** How do you use your website – primarily as a **selling** tool, a **source of information**, or as a **marketing** tool?

4. Who took responsibility for over-seeing the process and making decisions? One person or a team? Is there one person within the organisation who is/was the prime instigator of the adoption of e-commerce? If so, what position does this person hold, and what is his/her role in the business? In what way is this person a significant person within the business? Or was it a team effort?

5. How did this person/s find out about e-commerce and its potential?

- Seminars organised and run by Government, educational institutions, industry, or other interested stakeholders?
- Meetings of trade, industry, commerce or professional organisations?
- Had completed an IT degree.
- Had used some form of e-commerce previously.
- General awareness through normal publicity channels.

6. What were the **first steps** you took – locating information, financial information, seeking advice re technology, training and ICT providers, finding suppliers of the various elements of e-commerce, learning of the potential benefits and disadvantages- and where did you go to find out?

7. What was the **order of implementation**? What steps of e-commerce did you execute first – website, email, online catalogue of products, shopping cart, electronic ordering and payment, online account payment, internal procedures, ...?

8. What obstacles or hurdles did you encounter in the process – web site development, finding right people for right job, difficulty in finding information needed, cost of implementation, bank charges for internet payment gateway transactions, lack of widespread use by customers and suppliers, staff concerns, language used by ISPs?

9. What **triggers** pushed you to adopt? Were the triggers inside your organisation or external to it?

*Cost and awareness issues*

1.  There were seminars to teach me and my staff about the benefits and how to use it .
2.  These seminars were provided outside of business hours.
3.  These seminars were relatively cheap or even free.
4.  I was able to get time relief from my business.
5. I was subsidised for the costs involved of:
  - buying equipment,
  - providing training,
  - installing the infrastructure needed.
  - establishing the e-business side of things.
  - Other .....

*Infrastructure help*

6.  Someone from outside was able to come into the business to assist me and my staff in getting it established.
7.  This help was relatively cheap or even free.
8.  On-going training is available.
9.  This training is relatively cheap or even free.

*General factors*

10.  The law guarantees protection of all aspects of e-commerce, such as validation of orders and payment for goods sent.
11.  I was able to locate a suitable business model for e-commerce
12.  I felt comfortable with the safety of internet transactions
13.  Fast access to the internet was available.
14.  Telstra's new wire-less technology, general packet radio service (GRPS) for mobile phones was an appropriate means of gaining access to the internet for my business.
15.  Is there anything that anyone could do or did to help you to adopt e-commerce? In other words, were there any other factors that persuaded you to adopt e-commerce.

**10.** Which disincentives held you back from using e-commerce in your business? (Tick all that apply.)

*Time issues*

- w.  I did not know enough about what is required.

- x. [ ] I did not have enough time to find out what is required.
- y. [ ] I had too much else to do.
- z. [ ] I did not feel properly prepared to adopt it.
- aa. [ ] I would have had to provide on-going training of staff to keep up-to-date with what is happening.
- bb. [ ] I planned to wait until I see others succeeding.

*Cost, security, privacy*

- cc. [ ] It cost too much to get started.
- dd. [ ] There was not sufficient financial return to justify outlaying the cost of the investment.
- ee. [ ] I was concerned about the security of customers giving credit details over the internet.
- ff. [ ] It is difficult to guarantee the privacy of my customers.
- gg. [ ] Hackers could get into the data files of my business.
- hh. [ ] I could not be sure that contracts from other jurisdictions will be honoured.

*Technological issues*

- ii. [ ] It was difficult to locate suitable business models and technologies needed for e-commerce.
- jj. [ ] Access to the internet was too slow.
- kk. [ ] I was waiting until broadband facilities were available to my business.
- ll. [ ] Telstra's new wire-less technology, general packet radio service (GRPS) for mobile phones, was not yet proven enough to substitute for broadband facilities.

*General issues*

- mm. [ ] It was too impersonal.
- nn. [ ] My customers did not want it.
- oo. [ ] It did not suit my type of business.  
My products were too specialised to be sold over the internet.
- pp. [ ] I did not see it as a real distribution channel.
- qq. [ ] My managers lacked the vision to appreciate the advantages offered by the technology.
- rr. [ ] Anything else? (Please give details.)

**11.** Which of the following benefits brought about by e-commerce do you think could possibly be achieved by your business? (Tick all that apply.)

1.  It could offer a competitive advantage.
2.  It could save the business money.
3.  It could lower the cost of individual transactions.
4.  It could be a more efficient way for my customers to pay accounts.
5.  It could expand the geographical coverage of my customer base.
6.  It could reduce the number of staff needed as many processes (such as acknowledgment of orders) can be done automatically.
7.  By selling direct to customers I could by-pass the middleman.
8.  It could make it possible for me to deliver goods more quickly to customers.
9.  The company could tailor services to specific sections of its market.
10.  It could be a more efficient way for me to pay invoices from suppliers.
11.  It could reduce the need to hold large quantities of inventory.
12.  It could be an important way to exchange information with:
  - customers
  - staff
  - suppliers.
13.  It could improve customer relationships.
14.  It could reduce input costs.
15.  By ordering online, I could get stock delivered more quickly.
16.  It could improve the supply chain for my products.
17.  Anything else? (Please give details.)

12. What *other benefits* have you already achieved –

1.          time savings because processes automated
2.          increased sales
3.          reduced production costs
4.          improved business efficiencies
5.          improved communication (with clients or staff or suppliers)
6.          improved staff efficiencies (such as fewer staff)
7.          online banking or other financial operations
8.          savings in procurement
9.          Anything else? (Please give details.)

.....

**13(a).** Any *non-tangible benefits* – improved customer communications and convenience to customers, development of reciprocal links, being seen as progressive or up-to-date?

**14.** Have you found the greatest benefits been your links to **customers** or to **suppliers**?

**15.** What **disadvantages** have you noticed?

1.          On-going costs,
2.          Need for continued maintenance of site and
3.          Training needs of staff,
4.          Telephony costs,
5.          Internet Service Provider costs,
6.          Additional staff needed to service increased sales,
7.          Lack of security and privacy?
8.          Anything else?

**15(a).** What has been the **greatest** disadvantage?

Frustrating in terms of IT problems – there is a very high cost involved when there are problems with the system – we have to get someone else in to fix the problem, and the cost of this is very high. When the system is down we cannot do anything, as all our stuff is on the machine.

**16.** How do you **promote** your website?

1.          On all printed materials,
2.          Through the media,
3.          Letter box drops,
4.          One to one basis,
5.          At trade and industry fairs,
6.          On company vehicles, or
7.          Register with popular internet search engines, or
8.          Do you have **no** active promotion?

**17.** Do you consider your owners/managers are entrepreneurs (that is, people who are slightly risk taking in their attitude)? Do the owners/managers attend seminars where they have been exposed to new ideas?

**18.** Are the owners/managers of your business the early adopters of any new service? Have they initiated other innovations into their businesses? What were they? Are they progressive business thinkers seeking any means possible to ensure the success of their business?

**19.** Do you belong to business organisations such as the ACT Chamber of Commerce? What trade, industry, or professional organisations do you (or your business) belong to?

**20.** Has the business been operating for more than five years (bearing in mind that 80% of all new businesses fail within the first five years)? If so, how long?

**20(a).** What type of business would you describe this as – financial, construction?

**20(b).** Which segment makes up the bulk of your clients – single individuals, investors, other small/medium businesses, suppliers, government departments,...

**21.** How many EFT (equivalent full time) employees are there in the business?

**22.** If you were to do it again, what would you **change**?

**23.** What **advice** would you offer to anyone else seeking to adopt e-commerce?

**24(a)** In what age group are the owners/managers of your business?

- Under 25 years?
- 25-50 years?
- 51-65 years?
- Over 65 years?

**24(b)** What is the highest educational level of the owners/managers of your business?

- Finished high school (Year 11 or 12)
- Completed an apprenticeship (Name it) .....
- University degree (Name it) . . . .

25. If I needed more information, would you be willing to meet with me again?

Thank you for your time and patience.

***Appendix Six***  
***Guide to Interview***

Dear ...

The attached guide gives you a brief outline of the type of questions I plan to ask during our interview.

1. In electronic commerce (or e-commerce), business is communicated and transacted over telecommunications networks and through computer systems. It may include functions such as marketing, finance, manufacturing, buying and selling goods and services, electronic mail, EDI, file transfer, searching the internet, or transferring electronic funds, using smart cards and digital cash, and doing business generally over digital networks. Which elements of e-commerce do you use in your business?
2. How do you use your website – primarily as a selling tool, a source of information, or as a marketing tool?
3. Who took responsibility for over-seeing the process and making decisions?
4. What were the first steps you took – locating information, financial information, seeking advice re technology, training and ICT providers, finding suppliers of the various elements of e-commerce, learning of the potential benefits and disadvantages- and where did you go to find out?
5. What was the order of implementation?
6. What obstacles or hurdles did you encounter in the process?
7. What triggers pushed you to adopt?
8. Which disincentives held you back from using e-commerce in your business?
9. Which benefits brought about by e-commerce do you think could possibly be achieved by your business?
10. What disadvantages have you noticed?
11. How do you promote your website?
12. Do you consider your owners/managers are entrepreneurs (that is, people who are slightly risk taking in their attitude)?
13. Are the owners/managers of your business the early adopters of any new service?
14. Do you belong to business organisations such as the Chamber of Business?
15. How long has the business been operating?
16. What type of business would you describe this as – financial, construction?
17. How many EFT (equivalent full time) employees are there in the business?
18. If you were to do it again, what would you change?
19. What advice would you offer to anyone else seeking to adopt e-commerce?

***Appendix Seven***  
***Letter of Thanks***

Division of Communication  
University of Canberra  
Bruce ACT 2601

Dear ...

I greatly appreciate the time you gave me recently when I interviewed you. I realise that it was time you could well have spent on your business, but you generously took time out to respond to my questions. In recognition of your generosity, I plan to put your name in a draw with the names of all the other people I interviewed for a prize of a three night weekend for two at the four-star apartment, Lantern Apartments in Thredbo Village.

I shall advertise the winners of the draw in the Public Notices section of the *Canberra Times* on Saturday 19 October 2002.

Once again, please accept my thanks for your time. Without your granting me time to interview, it would not have been possible for me to complete my research.

Yours truly,

Joan D Jensen

***Appendix Eight***  
***Index terms or List of Subjects used***

These terms were given by SMEs during their interviews. Where they have used slightly different terms with similar meaning, such terms have been combined. Terms use the wording that the SMEs themselves employed. In the original listing the researcher also put the names of SMEs that had used those terms beside them to aid in locating those SMEs that had used particular terms. Names of SMEs have been removed to preserve confidentiality.

ADSL

access to internet

accountant

accounting functions

accuracy

adapting business model

advertise

authentication of user names and passwords

automated functions

back-up system

balancing act

Bank approach

banking limits

Bank's support,

Bank as big brother and Big Brother

BAS

being seen to be up-to-date

Big Colour Pages

broadband access

business image

business is registered

business savings

Cash control and cash flow

cheap help

client reluctance

client resistance to technology

communication

communication language  
compact system  
compatibility of hardware  
competitive advantage or competitive edge  
complaints against ISPs  
complaints against trade organisation  
computer literate  
confirmation of orders  
consultants  
contractor  
convenience to suppliers  
corporate plan  
cost benefit and cost benefit  
cost effectiveness  
cost of implementation  
cost of banking transactions  
cost of inaccuracies in data input  
cost of ISP  
credibility of customers  
Customers push  
customer benefits  
customer communications  
customer database  
customer satisfaction  
database  
deliver goods more quickly  
demand by clients  
dial-up modem  
difficulty in finding software  
direct marketing  
disadvantages  
disincentives  
Dissemination of information

EDI  
efficient  
EFTPOS  
email addresses  
enhancement of banking services  
entrepreneurs  
ethics  
expectations of users  
external delays  
external hosting  
family assistance  
fax levy  
fax-stream  
financial preparation  
finding right people for right job  
fraud  
FrontPage 98  
functions  
future plans  
government departments  
government information  
government legislation  
greater convenience  
GST  
Hackers  
HR – Human Resources  
implications for suppliers  
increase costs  
industry  
information solution  
innovations  
internal cost issues  
internal functions and internal procedures

internet banking  
internet presence  
international markets  
inventory  
isolation  
just in time  
just in time' critical factor  
lack of service  
lack of support (from Telstra, from ISPs)  
labour  
lack of knowledge  
lack of privacy  
lack of reliability  
lack of security  
lack of vision  
language used by computers  
large companies  
legal issues  
level of protection  
level of service  
level playing field  
limitations  
locating business model  
logical step in our business  
managing internal overhead functions  
market targeting  
marketing problems  
monopoly (of ISPs and Microsoft)  
more efficient way for me to pay invoices  
means of referral  
need for website  
needs analysis  
networking

niche market  
on-going costs  
online banking  
online self-help  
order of implementation  
organic knowledge  
out-sourcing  
overseas  
overwhelmed with information  
personal experience  
point-of-sale technology  
post-delivery service  
potential clientele  
privacy issues  
production costs  
profiteering  
promotion of website  
propinquity of available services  
purchasing online – bargains  
Push came from someone else in the industry  
reciprocal links  
reduced need to hold inventory  
reduction in staff  
response to client demands  
responsibility for developments  
restrictions (by upper level of organisation)  
right application  
ROI return on investment  
sales exempt  
savings in staff  
savings in time  
scams and junk mail  
searching for a solution

secure site  
seen as progressive  
seminars – wast of time;  
serendipity  
shopfront  
shopping cart  
single individuals  
SNAP  
specialised training  
staff concerns  
staff problems with internet  
staff training  
stakeholders  
statutory authority  
stock control  
strategy  
suppliers push  
system downtime  
target audience  
targeted ordering  
technology solution  
Telstra's ADSL  
time critical  
time savings  
too-hard basket  
too many layers to find web site  
trade organisations  
training sessions available  
training needs  
transfer of cost centres  
updating system  
updating stock control  
unreliable internet connections

Value of website  
virtual company  
virtual marketplace  
virus checker  
wait and see  
web presence  
web site host  
web site improvements  
web site maintenance  
word of mouth  
Y2K  
Yellow Pages

***Appendix Nine***  
***Order of Questions used in Analysis of Non-Adopter Responses***

***Use of questions in various sections of analysis of non-adopters***

<b>Section heading</b>	<b>Questions used to provide information for section</b>
Nature of non-adopters as entrepreneurs	Questions 6 and 7 or 10 and 11
Present knowledge of e-commerce	Question 1
Finding out about e-commerce	Question 8
Being subject to external initiators	Question 4, 11,
Possessing an appropriate level of technology in their business	Question 2b
Benefiting from e-commerce	Question 5
Disincentives to adopting e-commerce	Questions 2a and 3
Characteristics of the firm	Questions 9, 10 and 11

The remainder of the questions in the second interview questionnaire were used to provide demographic information that was used in Chapter 3.

***Appendix Ten***  
***List of tables used to prepare figures in Chapters Five, Six and***  
***Seven***  
***Plus tables from Chapters Two and Four***

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## Tables from Chapter 5

All tables from Chapter 5 relate to non-adopter SMEs while all tables from Chapter 6 relate to adopter SMEs.

**Table 5.2.1 Non-adopters who saw themselves as entrepreneurs**

Response	SMEs	Percentage
Yes	16	64
No	9	36

**Table 5.2.2 Non-adopters who saw themselves as early adopters**

Response	SMEs	Percentage
Yes	15	60
No	10	40

**Table 5.3.1 Non-adopter SMEs' knowledge of e-commerce**

Level of knowledge	SMEs	Percentage
Full awareness	10	40
Online banking	6	24
Very limited knowledge	4	16
Absolutely no knowledge	3	12
Some knowledge	2	8
Total	25	100

**Table 5.4.1 Membership of professional associations**

Membership	SMEs	Percentage
Yes	19	76
No	6	24

**Table 5.4.2 Attendance at seminars**

<b>Response</b>	<b>SMEs</b>	<b>Percentage</b>
Yes	17	68
No	8	32

**Table 5.5.1 Clients of non-adopters**

<b>Clients</b>	<b>SMEs</b>	<b>Percentage</b>
Individuals	18	72
Investors	1	4
SMEs	6	24
Corporations	2	8
Suppliers	0	0
Government	0	0

**Table 5.5.2 Approaches made by banks**

<b>Response</b>	<b>SMEs</b>	<b>Percentage</b>
Yes	3	12
No	22	88

**Table 5.6.1 Non-adopters' use of a computer in the business**

<b>Use a computer</b>	<b>SMEs</b>	<b>Percentage</b>
Yes	15	60
No	10	40

**Table 5.7.1 Potential benefits**

<b>Potential benefit</b>	<b>SMEs</b>	<b>Percentage</b>
Time savings because processes automated	5	20

Improved business efficiencies	4	16
Could save the business money	2	8
Improved communication (with clients, staff or suppliers)	1	4
Online banking or other financial operations	1	4
Savings in procurement	1	4
Could lower cost of individual transaction	1	4
More efficient way for customers to pay accounts	1	4
Could expand geographic coverage	1	4
More efficient way to pay invoices from suppliers	1	4
An important way to exchange information with customers	2	8
An important way to exchange information with suppliers	2	8
Could improve customer relationships	1	4
Seen as progressive and up-to-date	1	1

**Table 5.8.1 Reasons for not adopting e-commerce**

<b>Reason</b>	<b>SMEs</b>	<b>Percentage</b>
Cost of resources	10	40
Satisfied with the way we do things now	5	20
Don't know enough about it – or currently learning about it	5	20
Have no computer	4	16
Not computer literate	3	12
Not big enough	2	8
Don't want to increase our business	2	8
Don't feel it is secure enough	2	8

Just not interested	2	8
It would attract thieves	1	4

**Table 5.9.1 Disincentives given by non-adopters for not adopting**

Reason	SMEs	Percentage
Time	10	40
Cost	11	44
Technology	1	4
General	22	88

**Table 5.9.2 General disincentives**

Reason	SMEs	Percentage
Doesn't suit my business	7	28
No real distribution channel	6	24
Too impersonal	3	12
Customers do not want it	3	12
Not interested	2	8
Too small	1	4

**Table 5.10.1 Number of employees of non-adopter SMEs**

Employees	SMEs	Percentage
1-5	15	60
6-10	5	20
11-15	0	0
16-20	1	4
21-26	2	8
26-30	0	0
31-35	1	4

<35	1	4
Total	25	100

**Table 5.10.2 Number of years non-adopters have been in business**

<b>Number of years</b>	<b>Non-adopters</b>	<b>Percentage</b>
1 - 5	4	16
6 - 10	4	16
11 - 15	4	16
16 - 20	3	12
21 - 25	3	12
26 - 30	3	12
More than 30	4	16
Total	25	100

**Table 5.10.3 Age group of non-adopter SMEs**

<b>Age group</b>	<b>SMEs</b>	<b>Percentage</b>
>25	0	0
25-35	6	24
36-55	12	48
56-65	7	28
>65	0	0
Total	25	100

**Table 5.10.4 Educational level of non-adopter SMEs**

<b>Level</b>	<b>SMEs</b>	<b>Percentage</b>
High school	5	20
Apprentice	8	32
University	12	48
Total	25	100

## Tables from Chapter 6

All tables in this section relate to adopter SMEs.

Note that when tables were created in SPSS, the title of the table was also included. Titles were repeated to reflect the numbering and naming sequence of the whole thesis.

**Table 6.2.1 Responsibility for the process**

Position	Number	Percentage
Owner	42	84
Team	4	8
Staff	4	8

The following four tables were combined to form Fig. 6.2.2 Issues relating to seminars that were triggers in the adoption process.

**Table 6.2.2a Seminars were available**

### Seminars available

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	44	88.0	88.0	88.0
Yes	6	12.0	12.0	100.0
Total	50	100.0	100.0	

**Table 6.2.2b Seminars were provided outside of business hours**

### Seminars after hours

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	47	94.0	94.0	94.0
Yes	3	6.0	6.0	100.0
Total	50	100.0	100.0	

**Table 6.2.2c Seminars were relatively cheap or even free****Seminars cheap or free**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	45	90.0	90.0	90.0
	Yes	5	10.0	10.0	100.0
	Total	50	100.0	100.0	

**Table 6.2.2d Was able to get time relief from the business****Got time off**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	49	98.0	98.0	98.0
	Yes	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

**Table 6.2.3 Subsidies received that were triggers in the adoption process**

Subsidy received	SMEs	Percentage
1. Infrastructure	2	4
2. Equipment	0	0
3. Training	0	0
4. E-business side	0	0

**Table 6.2.4 Infrastructure help available**

Help available	SMEs	Percentage
5. Outside help	23	46
6. Cheap help	12	24
7. On-going training	7	14
8. Training cheap	6	12

**Table 6.2.5 General factors**

<b>General factors</b>	<b>SMEs</b>	<b>Percentage</b>
9. Protection guaranteed by law	2	4
10. Suitable business model available	13	26
11. Safety of transactions online	13	26
12. Fast internet access	15	30
13. GRPS	0	0
14. Other factors	46	92

**Table 6.3.1 Owners as entrepreneurs**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	44	88
No	6	12
Total	50	100

**Table 6.3.2 SMEs that considered themselves early adopters**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	44	88
No	6	12
Total	50	100

**Table 6.4.1 Means by which decision-makers found out about e-commerce**

<b>How decision makers found out about e-commerce</b>	<b>SMEs</b>	<b>Percentage</b>
General awareness through normal publicity channels	35	70

Had completed some IT study	17	34
Had used some form of e-commerce previously	15	30
Some other reason	15	30
Meetings of trade, industry, commerce or professional organisations	5	10
Seminars organised and run by Government, educational institutions, industry or other interested stakeholders	2	8

**Table 6.4.2 Client base of SMEs**

Type of client	SMEs	Percentage
Individuals	27	54
Other SMEs	18	36
Government	15	30
Investors	7	14
Large corporations	5	10
Suppliers	1	2

**Table 6.4.3 Membership of a professional association**

Response	SMEs	Percentage
Yes	34	68
No	16	32
Total	50	100

**Table 6.5.1 First steps in adoption process**

First step	SMEs	Percentage
Found out – located information	20	40
Had IT background so knew what to do	16	32
Used consultants	11	22

Approached by people outside the business	8	16
Was computer literate	4	8
Completed a full needs analysis	3	6

**Table 6.5.2 Order of adoption of various processes**

Procedure	Order of implementation			
	1	2	3	4
Email	34	6	0	0
Web site	3	21	6	1
Bill paying	1	8	8	0
Catalogue	0	0	9	0
Electronic banking	1	0	5	1
Online ordering	0	1	2	4
Complete system	10	0	0	0
Domain name	1	0	0	0

**Table 6.6.1 Summary of e-commerce activities adopted**

Element of e-commerce	SMEs	Percentage
1. Use email	50	100
2. Search online for product or service information	43	86
3. Obtain reference or research information	42	84
4. Search for government information	40	80
5. Pay business accounts online	37	74
6. Have a company web site	34	68
7. Communicate with suppliers online	29	58
8. Order stock online	23	46

9. Allow customers to order online	16	32
10. Allow customers pay for orders online	15	30
11. Anything else	13	26
12. Use EDI for any aspect of business	6	12

**Table 6.6.2 SMEs searching online for product or service information****Product or service information**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	7	14.0	14.0	14.0
Yes	43	86.0	86.0	100.0
Total	50	100.0	100.0	

**Table 6.6.3 Obtain reference or research information****Reference or research information**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	8	16.0	16.0	16.0
Yes	42	84.0	84.0	100.0
Total	50	100.0	100.0	

**Table 6.6.4 Search for government information****Government information**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	10	20.0	20.0	20.0
Yes	40	80.0	80.0	100.0
Total	50	100.0	100.0	

**Table 6.6.5 Pay business accounts (e.g. wages) online**

**Pay business accounts online**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	13	26.0	26.0	26.0
	Yes	37	74.0	74.0	100.0
Total		50	100.0	100.0	

**Table 6.6.6 Adopters having a company web site**

**Have a company website**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	16	32.0	32.0	32.0
	Yes	34	68.0	68.0	100.0
Total		50	100.0	100.0	

**Table 6.6.7 How adopter SMEs used their web site**

<b>How SMEs used their web site</b>	<b>SMEs</b>	<b>Percentage</b>
Marketing tool	26	52
Information source	20	40
Some other use	14	28
Selling tool	13	26
Had no web site	10	20

**Table 6.6.8 Promotion of company web site**

<b>Method</b>	<b>SMEs</b>	<b>Percentage</b>
Print	27	54

No promotion	22	44
One to one	21	42
Search engines	19	38
Media	16	32
Fairs	14	28
Letter box	10	20
Vehicles	6	12

**Table 6.6.9 Communicate with suppliers online****Communicate with suppliers**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	21	42.0	42.0	42.0
	Yes	29	58.0	58.0	100.0
	Total	50	100.0	100.0	

**Table 6.6.10 Order stock online****Order stock online**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	27	54.0	54.0	54.0
	Yes	23	46.0	46.0	100.0
	Total	50	100.0	100.0	

**Table 6.6.11 Allow customers to order online****Customers order online**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	34	68.0	68.0	68.0
	Yes	16	32.0	32.0	100.0
	Total	50	100.0	100.0	

**Table 6.6.12 Allow online payment of orders by customers****Customers pay online**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	35	70.0	70.0	70.0
	Yes	15	30.0	30.0	100.0
	Total	50	100.0	100.0	

**Table 6.6.13 Use EDI (Electronic Data Interchange)****Electronic data interchange**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	44	88.0	88.0	88.0
	Yes	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

**Table 6.6.14 Anything else?****Anything else**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	37	74.0	74.0	74.0
	Yes	13	26.0	26.0	100.0
	Total	50	100.0	100.0	

**Table 6.6.15 Automated any functions****Automated any functions**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	28	56.0	56.0	56.0
	Yes	22	44.0	44.0	100.0
	Total	50	100.0	100.0	

**Table 6.7.1 Possible benefits from e-commerce a-e**

<b>Benefit</b>	<b>SMEs</b>	<b>Percentage</b>
a. Offers a competitive advantage	35	70
b. Could save business money	33	66
c. Could lower cost of individual transactions	25	50
d. More efficient way for my customers to pay accounts	23	46
e. Could expand the geographical coverage	33	66

**Table 6.7.2 Possible benefits from e-commerce f-k**

<b>Benefit</b>	<b>SMEs</b>	<b>Percentage</b>
f. Pay suppliers online	34	68
g. Tailor services to suit individual clients	24	48
h. Less staff needed	20	40
i. Faster delivery to customers	14	28
j. Reduce inventory held	13	26
k. No middleman	8	16

**Table 6.7.3 Important way of exchanging information**

	<b>SMEs</b>	<b>Percentage</b>
Customers	38	76
Staff	28	56
Suppliers	32	64

**Table 6.7.4 Possible benefits from e-commerce m-q**

<b>Benefit</b>	<b>SMEs</b>	<b>Percentage</b>
m. Improve customer relationships	40	80
n. Reduce input costs	19	38
o. Receive goods more quickly	21	42
p. Improve supply chain	13	26
q. Other possible benefits	22	44

**Table 6.7.5 Benefits already achieved a-e**

<b>Benefits</b>	<b>SMEs</b>	<b>Percentage</b>
Time savings because processes automated	34	68
Increased sales	19	38
Reduced production costs	9	18
Improved business efficiencies	38	76
Improved communication	38	76

**Table. 6.7.6 Benefits already achieved f-i**

<b>Benefits</b>	<b>SMEs</b>	<b>Percentage</b>
f. Improved staff efficiencies	18	36
g. Improved financial operations	36	72
h. Savings in procurement	12	24
i. Other	18	36

**Table 6.7.7 Non-tangible benefits**

<b>Response</b>	<b>SMEs</b>	<b>Percentage</b>
Yes	42	84
No	8	16
Total	50	100

**Table 6.7.8 Segment that provides greatest benefits from the links**

<b>Benefits provided by</b>	<b>SMEs</b>	<b>Percentages</b>
Customers	29	58
Suppliers	6	12
Both equally	7	14
Neither	8	16
Total	50	100

**Table 6.8.1 Time issues that held adopter SMEs back from using e-commerce a-f**

<b>Reason</b>	<b>SMEs</b>	<b>Yes (Percentage)</b>
<i>a.</i> Lacked time	15	30
<i>b.</i> Too much else to do	15	30
<i>c.</i> Lacked knowledge	13	26
<i>d.</i> Not prepared	5	10
<i>e.</i> On-going training needed	5	10
<i>f.</i> Wait and see	2	4

**Table 6.8.2 Cost, security and privacy issues for not adopting g-l**

<b>Reason</b>	<b>No (Percentage)</b>	<b>Yes (Percentage)</b>
<i>g.</i> Cost too much to get started	78	22
<i>h.</i> Insufficient return on investment	78	22
<i>i.</i> Concern for security of customers	86	14

<i>j.</i> Difficult to guarantee privacy of customers	92	8
<i>k.</i> Possibility of hackers	84	16
<i>l.</i> Lack of surety that contracts would be honoured in other jurisdictions	98	2

**Table 6.8.3 Technological issues m-v**

<b>Issue</b>	<b>SMEs</b>	<b>Percentage</b>
No suitable business model	7	14
Slow internet access	7	14
Unsuitable for my business	6	12
No distribution channel	5	10
No broadband access	4	8
Managers lacked vision	3	6
Customers did not want e-commerce	2	4
Too impersonal	1	2
GRPS not proven	0	0
Other	29	58

**Table 6.8.4 Disadvantages from adopting e-commerce a-h**

<b>Disadvantage</b>	<b>SMEs</b>	<b>Percentage</b>
Other disadvantages	26	52
Ongoing maintenance	24	48
Staff training	18	36
Ongoing costs	14	28
Lack of security and privacy	14	28
ISP costs	13	26
Telephony costs	10	20

More staff needed	3	6
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**Table 6.9.1 Number of FTEs employed by SMEs**

Number of employees	SMEs	Workers
1 - 5	19	59
6 - 10	12	98
11 - 15	2	27
16 - 20	4	78
21 - 25	2	45
26 - 30	3	86
31 - 35	0	0
36 - 40	1	40
<i>Note change of scale</i>		
41 - 50	3	143
50 - 60	1	52
61 - 70	0	0
71 - 80	1	75
81 - 90	0	0
91 - 100	2	198
<b>Total FTEs</b>		<b>901</b>

**Table 6.9.2 Number of years adopter SMEs have been in business**

Number of years	Number of SMEs	Percentage
1 - 5	10	20
6 - 10	12	24
11 - 15	9	18
16 - 20	3	6
21 - 25	7	14
26 - 30	4	8

More than 30	5	10
Total	50	100

**Table 6.9.3 Age group of adopter SMEs**

Age group	SMEs	Percentage
>25	0	0
25-35	20	40
36-55	18	36
56-65	10	20
65+	2	4
Total	50	100

**Table 6.9.4 Highest educational level gained by SMEs who have adopted**

Level of education	SMEs	Percentage
University	35	70
High school	9	18
Apprentice	6	12
Total	50	100

## Chapter Seven

Tables in this chapter combine results of both non-adopter and adopter SMEs.

**Table 7.4.1 Number of employees**

	SMEs		Percentage	
	Adopters	Non-adopters	Adopters	Non-adopters
1-5	18	15	36	60
6-10	14	5	28	20
11-15	3	0	6	0
16-20	4	1	8	4
21-25	2	2	4	8
26-30	1	1	2	4
31-35	2	0	4	0
35+	6	1	12	4

**Table 7.4.2 Number of years SMEs have been in business**

Number of years	Adopters	Percentage	Non-adopters	Percentage
1 - 5	10	20	4	16
6 - 10	12	24	4	16
11 - 15	9	18	4	16
16 - 20	3	6	3	12
21 - 25	7	14	3	12
26 - 30	4	8	3	12
More than 30	5	10	4	16
Total	50	100	25	100

**Table 7.4.3 Decision-makers as entrepreneurs who introduce innovations**

	<b>Adopters</b>	<b>Percentage</b>	<b>Non-adopters</b>	<b>Percentage</b>
<b>Entrepreneurs</b>	44	88	16	64
<b>Innovators</b>	44	88	15	60

**Table 7.4.4 Age level of decision-makers**

<b>Age group</b>	<b>Adopters</b>	<b>Percentage</b>	<b>Non-adopters</b>	<b>Percentage</b>
>25	0	0	0	0
25-35	20	40	6	24
36-55	18	36	12	48
56-65	10	20	7	28
>65	2	4	0	0
<b>Total</b>	<b>50</b>	<b>100</b>	<b>25</b>	<b>100</b>

**Table 7.4.5 Highest educational level gained by decision-makers**

<b>Level of education</b>	<b>Adopters</b>	<b>Percentage</b>	<b>Non-adopters</b>	<b>Percentage</b>
University	35	70	5	20
High school	9	18	8	32
Apprentice	6	12	12	48
<b>Total</b>	<b>50</b>	<b>100</b>	<b>25</b>	<b>100</b>

***Appendix Eleven***  
***Order of Questions used in Analysis of Adopter Responses***

***Use of questions in various sections of analysis of adopters***

<b>Section heading</b>	<b>Questions used to provide information for section</b>
Making the decision	Questions 4 and 9
Decision makers as entrepreneurs	Questions 18 and 17 (part)
Finding out about the potential of e-commerce	Questions 5, 19 (part) and 20(b).
Implementing e-commerce	Questions 6 and 7
Using e-commerce	Questions 1, 2, 3 and 16
Anticipating and receiving benefits	Questions 11, 12, 13 and 14
Disincentives to the adoption process	Questions 8, 10, and 15
Characteristics of the firm	Questions 20, 21, and 24
Lessons learned from adopting	Questions 22 and 23

Question 20(a) was used in Chapter 4 to support the methodology used.