

**A PRELIMINARY STUDY INTO STRATEGIES FOR  
DETERMINING THE LEVEL TO START E-COMMERCE  
ADOPTION FOR SUCCESS IN SMMEs**

by

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## **DECLARATION**

I, the undersigned, hereby declare that the work contained in this thesis “a preliminary study into determining the stage to start e-commerce adoption in Small Medium Micro Enterprises” is my own original work, and that it has not been submitted before for any degree or assessment in any other University, and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references.

**Ignitia Motjolo pane**

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

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## **ABSTRACT**

E-commerce improves value chain integration, enables customisation and also provides smaller companies opportunity to reach customers worldwide. However e-commerce poses challenges to companies, including how to approach e-commerce to gain competitive advantage.

Although a number of studies report on e-commerce adoption, these do not provide clear guidelines to determine how SMMEs should progress or move into e-commerce adoption. The aim of this research study is to examine the various available approaches and propose a model to assist SMMEs to determine how to start e-commerce adoption.

Findings from this research study indicate that a small percentage of SMMEs are selling online in the Western Cape and realizing benefits derived from e-commerce adoption. The SMMEs interviewed followed an “adoption ladder” approach to e-commerce adoption, however, some had the perception that with maturity of e-commerce, a “managed strategic” approach would be possible. In conclusion the research study proposes a model to assist SMMEs to progress into e-commerce adoption, illustrating two available approaches.

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# **1 Chapter 1: Introduction to this Research Study**

## **1.1 Introduction**

Electronic commerce (e-commerce) can be described as digitally enabled commercial transactions between organisations. Commercial transactions involve the exchange of value, for example, money, across organisational or individual boundaries in return for products and services (Laudon & Traver, 2003). Da Silveira (2003:201) has three views on e-commerce that have relevance to the problems and issues covered in this research study. Firstly, e-commerce improves value chain integration by reducing transaction costs, facilitating just-in-time delivery and improving information gathering and processing. Secondly, e-commerce enables customisation with the availability of databases and direct links between producers and customers to support high levels of product customisation. Finally, e-commerce provides internationalisation by enabling smaller companies to reach customers worldwide.

This research study focuses on SMMEs operating in the Western Cape of South Africa. Its purpose is to propose a useful and practical model that will assist SMMEs to select an appropriate e-commerce adoption approach. This will be achieved by extensively reviewing literature related to international electronic commerce adoption in general terms and then to focus on the approaches used by South African SMMEs that have already adopted e-commerce.

## **1.2 Background**

The history of the Internet is complex, involving technological, organizational and community aspects (Leiner, Cerf, Clark, Kahn, Kleinrock, Lynch, Postel Roberts & Wolf 1997:102). The idea of the Internet was conceived at Rand Corporation in 1960 by Paul Baran and realized with the creation of the



Advanced Research Projects Agency Network (ARPANET) in 1968 (Lowe, Lomax & Polonkey 1996:2). By the early 1980's the ARPANET was known simply as the Internet and the number of connections continued to grow (Kahn, 1994:16). Lowe *et al.* (1996:1-2) state that a significant development that led to Internet growth was the World Wide Web (Web). The Web was developed at CERN (the European Particle Physics laboratory) in Geneva Switzerland. The Web was developed to be a pool of human knowledge which would allow collaborators in remote areas to share ideas on aspects of common projects (Berners-lee, Cailliau, Luttonein, Nielsen 1994:76).

Internet use has grown rapidly over the past decade. According to an Internet usage Statistics report (2005), as of November 21<sup>st</sup>, 2005, there were an estimated 972,828,001 people using the Internet, that is 15% of the estimated world population. Penetration in Africa is estimated at 2.7%. The South African e-commerce sector has experienced rapid growth over the last five years. Despite high Internet penetration in business and upper income households, the majority of lower-income households do not have access to Information Technology (Winney, 2005:204).

According to Palaniswami, Lopes and Sprague (2004:3,10) e-commerce revenues were estimated at 0.43 trillion US Dollars in 2004. Furthermore e-commerce and its related applications play a crucial role in assisting business to meet the 21<sup>st</sup> century challenges such as the need to reduce product and service cycle times, maintain profitability and long-term survival.

A growing number of households are now connected to the Internet and the potential for using e-commerce is emerging (King, Sen, & Xia 2004:103). According to Hawk (2004:181) most e-commerce transactions occur in the advanced economies of the United States, Canada and Western Europe. Predictions indicate significant growth of Internet access in many developing countries in the near future. Hawk (2004:181) states that in developing

countries those connected to the Internet tend to be among the more affluent making e-commerce attractive to business. The challenges to e-commerce growth in developing countries include lack of telecommunication infrastructure, under developed state of Internet Service Providers (ISP) and low average income of the population (Hawk 2004:182).

The above review indicates that e-commerce is a rapidly developing application that presents opportunities and challenges to businesses. The following section examines research on e-commerce adoption in Small Medium Micro Enterprises (SMMEs) in South Africa.

### **1.3 SMME e-commerce adoption and strategies in South Africa**

Various aspects of e-commerce adoption strategies in South African SMMEs is reported in the literature, for example, De Klerk and Kroon (2005:33-40) conducted research in South African business to determine the role and degree of adoption of e-commerce technologies comparing micro and small business to medium and large businesses. Their study found that medium and large businesses tend to use business technologies, such as expert systems, automated storage, robotics and bar codes more than micro and small businesses. Cloete (2002) reports on South African SMMEs' acceptance and adoption of e-commerce from a target population of 253 SMMEs' operating in the Johannesburg and Pretoria area. He concluded that the use of the Internet for electronic commerce by small businesses in South Africa is limited compared to global standards. A similar finding was made by Cloete, Courtney and Fintz (2002:1-13) examining the acceptance and adoption of e-commerce amongst small businesses in the manufacturing sector in the Western Cape. From their sample of 195 SMMEs at a response rate of 20%, it was concluded that in comparison to global e-commerce use, technologies were not adopted to an extent that is necessary for survival in a rapidly changing environment.

Moodley, Morris and Velia (2003) researched the utilization of e-commerce in South Africa for exporting garments. Based on interviewing 28 firms and 9 personal interviews with industry experts there was no evidence to support the view that e-commerce is used for completing inter-firm commercial transactions, or to enable international trade by reducing coordination costs.

Zeelie (2003) studied the critical success factors in the adoption of e-commerce by SMEs in the Port Elizabeth area in South Africa. From a sample of 40 SMEs, the study identified nine critical success factors that influence e-commerce performance. Singh (2002) studied the strategies for optimal utilization of Internet in South Africa. From a sample of 295 consumers drawn from a tertiary institution in Durban, the study highlighted barriers preventing optimal Internet usage and suggested strategies for overcoming these obstacles.

The above studies show that, in general adoption and usage of e-commerce in South Africa is not fully utilised.

#### **1.4 Objectives of the research**

The objective of this research study is to propose a useful and practical model that will assist SMMEs that choose to adopt e-commerce in the Western Cape, to select between the available adoption approaches. This objective will be achieved by extensively reviewing the literature related to international e-commerce adoption in general terms and then focussing down to explore how South African SMMEs have adopted e-commerce.

This research study is relevant to e-commerce adoption because the results are expected to lead to a deeper understanding of the available e-commerce adoption approaches for SMMEs in the Western Cape. The results would be important to the Department of Trade and Industry, Local government, funding agencies and non-governmental organizations in their decision-making regarding e-commerce funding, policy making and facilitation. The

research is of practical relevance in supporting SMME owner-managers as they address the challenges of moving into e-commerce. The local SMMEs can also benefit by assessing available adoption approaches in order to choose the one that best suits their companies when they adopt e-commerce.

## 1.5 Definition of terms

This section defines the basic terms and concepts used in the research study in order to avoid any ambiguous interpretations of the terms.

“**Adoption ladder**” is a stage of maturity e-commerce adoption approach where a company starts on the bottom rung of the ladder and then progresses upwards (Levy & Powell, 2003:173).

**Competitive Advantage** refers to the strategic fit among business activities such that costs are substantially reduced or differentiation is increased (Porter 1996:73). Competitive advantage is realised when a business increases market share, gains new customers, improves customer loyalty, lowers production costs or succeeds with new products and services (Neumann 1994<sup>1</sup> in Raghunathan & Madey 2001:934).

**Critical success factors** are the necessary limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization (Rockart 1979:85).

**E-business** refers to the use of telecommunication networks, particularly the Internet for information exchange, commercial transactions and knowledge sharing between organizations, facilitating data flows in business-to-business or system-to-system processes (McNurlin & Sprague, 2002).

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<sup>1</sup> Neumann S. (1994) 'Strategic Information Systems: Competition Through Information Technologies' Macmillan, 1994.

**Information Technology (IT)** refers specifically to hardware, software and telecommunications networks that facilitate acquisition, processing, storing, delivery and sharing of information and other digital content (Ward & Peppard, 2002:3).

**Information Communication Technologies (ICTs)** refers to technologies that facilitate the creation, storage, management and dissemination of information by electronic means. These include radio, television, telephone, fax, computer and the Internet (Gerster & Zimmermann, 2003:4).

**Internet** is defined as a world-wide interconnected network of computer networks (Botha 2000:3).

**“Managed strategic adoption”** is an approach where a company adopts e-commerce in stages that targets meeting specific requirements (Castleman & Cavil, 2003:3).

**Small Medium Micro Enterprise (SMME):** The definition varies from country to country. Da Costa (2001:3-4) finds that in the United states of America SMEs are defined as firms having fewer than 500 employees, whereas in Europe SMEs are firms with fewer than 250 employees. In Japan SMEs are firms with fewer than 100 employees.

In South Africa SMMEs are defined according to the size of the organisation, the number of employees, total turnover and total gross asset value (South Africa, 1996; South Africa, 2003). SMMEs are classified as companies having the number of employees range between 5 and 200, with a total turnover between 0.2 million and 64 million Rand and a gross asset value ranging from 0.1 million to 23 million Rand. In this research study, SMME refers to the South African definition whereas SME refers to the international definitions.

## **1.6 Research Process**

### **1.6.1 Research Problem**

Although a number of studies report on e-commerce adoption, these do not provide clear guidelines to determine how an SMME should progress or move into e-commerce adoption. The implication of this is that SMMEs have no point of reference when selecting an appropriate adoption approach that will suit their business requirements.

### **1.6.2 Research Question**

How can SMMEs determine the stage at which they may start e-commerce adoption?

### **1.6.3 Investigative questions**

- At what stage of e-commerce adoption are SMMEs in the Western Cape of South Africa?
- Which approach have the SMMEs adopted for e-commerce? A “ladder adoption” or “managed strategic adoption”?
- What are the critical success factors at each stage of e-commerce adoption?

## **1.7 Research Design and Methodology**

Qualitative analysis using in-depth interviews and double sampling techniques was used. A list of 4,500 registered businesses from the Cape Town Regional Chamber of Commerce and Industry’s (Chamber) website was downloaded and stored in a spreadsheet. The next step was to find the Universal Resource Locator (URL) of each business to determine how many had adopted e-commerce. This would support the investigative question dealing with the stage of e-commerce adoption in SMMEs.

At this stage a list of possible SMMEs selling online could be created and a sample drawn for the in-depth interviews. This resulted in a sample size of 38 businesses, spread across 14 different sectors; in some cases only one business found per sector. Five SMMEs were selected for in-depth analysis to determine the route each followed in adopting e-commerce, why they choose this route and the benefits these companies were realizing from e-commerce. The interviews with the owners or executive officers responsible for e-commerce adoption in each SMME were recorded and later transcribed by a Research Assistant. The results were analysed using content analysis, and work on a proposed model to assist SMMEs to adopt e-commerce commenced. This would support the investigative question dealing with e-commerce adoption approach adopted by SMMEs.

The critical success factors in the stages of growth identified by Chappell, Feindt and Jeffcoate (1999) were analysed to map the critical success factors to the in Chau and Turner (2003) e-commerce adoption model. This was to satisfy the investigative question dealing with critical success factors at each stage of e-commerce adoption. The mapping of the critical success factors would enable SMMEs to be aware of the critical success factors at each stage of the Chau and Turner (2003) e-commerce adoption model.

## **1.8 Research Constraints**

The target population was drawn from the Chamber. Not all SMMEs in the Western Cape are registered with the Chamber.

Clarke (2000) states that there are many difficulties in the technology adoption process and such studies need to be longitudinal in nature. This research study examines how SMMEs determine the stage at which to enter e-commerce adoption and would possibly be better served by a longitudinal study; however, the time available for undertaking this research did not allow the researcher to collect data from the SMMEs more than once.

While reviewing the websites their level of security and site optimization were not examined. Time constraints were such that the interviews were not triangulated, views from various people in the companies were not addressed as only one person per company was interviewed.

In this research study, the number of employees was considered as the principal criterion for determining company size. As the research was undertaken in private companies the annual turnover and asset value could not be obtained as were considered to be confidential.

In the research study the strategy formulation process in the SMMEs was not examined. This would have provided insights into how the companies linked the company business strategies and the e-commerce strategies.

## **1.9 Overview of chapters**

Chapter 1 sets the scope of the research and its limitations. This is done by providing an overview of the research undertaken on e-commerce adoption by SMMEs in South Africa. The objectives, research questions and limitations of the research study are set out. The key terms are clarified and research methodology briefly explained. Chapter 2 provides a review of e-commerce adoption trends, e-commerce strategy development process and e-commerce adoption models. Chapter 3 examines the research methodology. Chapter 4 reports on research results. Chapter 5 discusses the research findings and draws conclusions from the research.



## **2 Chapter 2 : – E-commerce Adoption Trends and Proposed Research Model**

### **2.1 Introduction**

The chapter reviews e-commerce adoption literature to determine how SMMEs can determine the stage at which to start e-commerce adoption. This chapter follows Chapter 1 that sets out the objective of the research study to propose a useful and practical model that will assist SMMEs to decide how to adopt e-commerce. Firstly, this chapter provides a background to e-commerce adoption in South Africa and e-commerce adoption in SMEs and SMMEs. Secondly, the discussion focuses on the factors that influence e-commerce adoption, e-commerce value creation, e-commerce benefits and e-commerce critical success factors. Thirdly, it examines how companies adopt e-commerce by discussing e-commerce strategies, e-commerce strategy development processes and e-commerce adoption models. The chapter concludes by proposing a research model for this study.

### **2.2 Background e-commerce adoption**

#### **2.2.1 Introduction to e-commerce adoption**

An increasing number of businesses are trading on the Internet but only a few are generating profits. This poses management with crucial challenges to identify where e-commerce profitability lies, how it is reached and how it could be sustained (Willcocks & Sauer, 2000:7). According to Teo and Pian (2003:78) businesses adopt e-commerce for different reasons ranging from the intention to have a simple Internet presence, to trading online and transforming business operations. Jones, Hecker and Holland (2003:287) argue there is limited research available on how to effectively integrate e-commerce in small firm operations.

The case of Small Medium Micro Enterprises (SMMEs) in the Western Cape of South Africa is no different, as they are faced with similar challenges found elsewhere in the world in connection with e-commerce adoption. For example, do they gradually mature and move initially from e-mail, step-by-step until they reach the e-commerce stage or should they simply be bold and move straight into e-commerce? Although a number of studies report on e-commerce adoption, no clear guidelines are provided to determine how SMMEs should progress or move into e-commerce adoption.

Various approaches and strategies for the adoption and implementation of e-commerce are available. These are examined to support the aim of the research study which is to propose a model to assist SMMEs to progress to e-commerce.

### **2.2.2 E-commerce adoption in South Africa**

The uptake of Internet services has been modest in South Africa. It is reported to be 7% (Economist Intelligence Unit, 2004:17) of a total population estimated at 46.6 million (South Africa, 2004). This is mainly because of the high cost of connections, inadequate coverage of high-speed connections and lack of bandwidth. These are partly caused by lack of market competition in the fixed line Telecommunications services. Despite the South African Government's decision to license a Second National Telecommunication operator, it has turned down numerous attractive and competing bids (Economist Intelligence Unit, 2004:17). According to a report of the Economist Intelligence Unit (2005a:3) Government's failure to enforce competition in the fixed-line market has seriously hampered broadband implementation and online services development. In addition, at the time of this research study, there is still no noticeable competition.

Moodley (2003:3) states that South Africa is experiencing rapid Internet usage growth with over 150 Internet Service Providers. South Africa has

produced some successful IT companies based on e-commerce systems, for example; Johnic Communications (Moodley, 2003:3). Johnic Communications and Rainbow Software International launched an Internet market place in June 2000 that processed 41,000 orders amounting to R500 million. This market place provides local and international online trading services to small, medium and large companies in South Africa with detailed product catalogues of 5 000 companies (ITWeb, 2000). With such a rapid Internet growth the potential for wide-scale adoption of e-commerce becomes promising (Moodley, 2003:78). According to UNCTAD (2004:34) South Africa has developed a competitive advantage in business processing, and the government spends over \$1.2 billion annually on its own Information Technology infrastructure.

Reported in Economist Intelligence Unit (2005b:39), online retailing is not popular in South Africa. Overall, electronic commerce is at an early stage but usage is expected to grow. The number of South African retail websites has expanded from 215 at the end of 2001 to more than 700 by the end of 2003. The market is dominated by eight top online retailers who account for about 80% of all online retail sales. The dominant online retailers are Pick n' Pay Home Shopping, Kalahari.net, Woolworths In thebag, Netflorist, Cybercellar and Street.com with the MWEB ShopZone dominating the online shopping malls followed by Digital mall (World Wide Worx, 2004). Retail sales at the end of 2003 increased by 35% and were expected to grow by 25% in 2004. The total online retail sales amounted to R341 million, that is 0.14% of the overall retail market in South Africa. According to Weaver (2005:231,234) booking air travel tickets online is increasing in South Africa. South African Airways reports an annual increase of 200% on online sales, whilst Kulula.com reports that 75% of its sales are done online and further that the websites processes over 3 million Rand in sales each day. 1time Airline reports that 80% of its revenue is derived from online sales.

The most common online purchases in South Africa are groceries, apparel and books. The single fastest growing retail category by number of sites is flowers and gifts followed by apparel, food, beverage and groceries. Sites that are associated with brick and mortar retailers tend to be the most profitable, and there is a clear distinction between online only businesses and combined physical and online operations when it comes to operational profit. The single biggest obstacle to growth was identified as access to higher and cheaper bandwidth (World Wide Worx, 2004). Economist Intelligence Unit (2005a:18) reports that whilst e-commerce is slowly emerging in Sub-Saharan Africa further development will require business and government attention to electronic security.

According to Mapeka (2000:110) the two common ways to pay for electronic transactions is to order and then contact the merchant by telephone to give credit details for payment, or order by telephone and submit credit card details over the Internet. This implies that electronic payments are linked to people with bank accounts.

The South African banking sector infrastructure and technology advancement matches or exceeds the offerings of most of the first world banking sectors. However, the banking sector serves a market that is small relative to international standards (Hartley & Worthington-Smith 2004:150). In 2003 the banking sector had 15.9 million customers of which two thirds earn below R4,000.00 gross per month. The sector is dominated by the largest four banks namely Absa, First Rand, Nedcor and Standard Bank. The challenges facing the banking industry include the need to maximise the value of existing accounts by increasing revenues per user, removing existing costs and to grow the market share with the unbanked market (Hartley & Worthington-Smith 2004:150).

The South African Reserve bank (2003:2) report estimates that around 17 million South Africans do not yet have bank accounts (unbanked). 5.7 million, are economically active and reside predominantly in rural areas, in shacks or informal settlements and in townships. Furthermore 1.9 million are pensioners and 2.9 million are students, who are people over the age of 16 and currently in secondary and tertiary education. The remaining around 7 million are not economically active. Hartley and Worthington-Smith (2004), estimate that two thirds of the South African population are unbanked. The South African Government has earmarked servicing this sector as a priority. The authors state that the recently announced Mzansi savings and transaction facility – an initiative between South Africa's banks allows previously unbanked clients a limited number of free transactions per month and it will have a positive effect in the economy.

South African banks are among the most profitable in the world but account charges are relatively high. The banks are likely to face additional pressure to reduce charges across the board. Debit cards are more prominent at 10,2 million issued while there are 3.6 million credit cards in use. Some 95% of debit cards are converted automated teller machine (ATM) cards, but growing transaction volumes indicate that scope exists for a roll-out into areas populated primarily by credit-card holders (Economist Intelligence Unit 2005b:46).

In South Africa online banking was estimated to have one million bank accounts at the end of 2003 and was expected to grow by 32% to reach 1.4 million customers by end of 2004 according to World Wide Worx in (Hartley & Worthington-Smith 2004:152). A Ghostdigeetst report (2005) suggest that only about half of online banking users transact online and about 400 000 individuals of these have gained sufficient trust in the Internet to transact outside of a secure banking environment. These quoted numbers of online banks compared to the population of South Africa, show that a very small

number of the banked customers use online banking. Having examined e-commerce adoption in South Africa the focus shifts to discussing e-commerce adoption in SMEs and SMMEs

### **2.2.3 E-commerce adoption by SMEs and SMMEs**

The emerging business environment requires a strategy that is based on low cost, high quality and fast response to customer needs. None of these elements on their own are sufficient to facilitate competitive success (Venkatrman1994:74). As competitive conditions increase, businesses continue to seek new ways to advance competitiveness, and one such approach is utilising e-commerce (Saban, 2001:34).

Straub and Klein (2001:54) identify three progressive stages of e-commerce evolution :

- The initial stage focuses on cutting costs and raising productivity .
- The second stage uses e-commerce to access new customers and markets.
- The final stage seeks to gain competitive advantage by integrating e-commerce into the company's overall business strategy.

According to Karagozoglu and Lindell (2004:291) SMEs focus on the first and second levels. Bytheway and Goussard (2001:14) support these three levels of evolution arguing that there are three stages of ambition in business improvement starting with simple benefits of efficiency, moving to effectiveness and ending in scenario three where the roles of players are re-defined.

SMEs play a vital role in many economies throughout the world and their ability to adopt e-commerce and utilise the Internet is of prime importance to ensure SME future survival (Quayle, 2002; 1158-1159, Stansfield & Grant,

2003:15). Several studies indicate that, e-commerce adoption in SMEs is limited. For example, in Australia approximately 65% of SMEs have access to the Internet, with only 15% of these actually having websites (Pease & Rowe 2003:2). In the United States Grandon and Pearson (2004:82) state that although SMEs in the United States employ more than half of the work force few had adopted e-commerce by the end of 2003.

According to Berry *et al.* (2003:6) SMMEs in the South African context encompass a broad range of businesses; from established traditional family businesses employing a few employees, to the survivalist and self-employed. The African Institute of Corporate Citizenship (2004:50) reports that there is uncertainty with regard to the number of SMMEs in South Africa. However, it is estimated that these range between 600 000 and 1.6 million, but generally estimated being 800 000. This uncertainty reflects the lack of research into the small business sector in South Africa. The African Institute of Corporate Citizenship (2004:49) indicates that ex-President Mandela emphasised the three aspects of SMME importance in South Africa. These are their contributions to social and economic development, to a more equal distribution of economic power and to reducing unemployment. The Department of Trade and Industry has earmarked 80% of its budget for enterprise and industry development to stimulate the growth of SMMEs. The Western Cape Provincial Government has allocated R50 million for small business development for 2004 (Cape Gateway, 2004). This indicates the South African government's commitment to encourage the existence and development of small businesses.

In South Africa, SMMEs contributed 46% to the total economic activity (Viviers & Soontiens, 1998:2). However, the available e-commerce technologies have not been adopted to the extent that would be necessary for survival in a rapidly changing environment (Cloete, Courtney & Fintz, 2002:1). South Africa as a developing country faces problems such as high

unemployment, low levels of working skills and poverty. Encouraging the development of SMMEs could contribute towards economic growth and assist in reducing poverty and unemployment (Cloete, 2002:2).

From the above discussion it is evident that there is no clear indication of how many SMMEs have adopted e-commerce in South Africa and in particular in the Western Cape, nor of the exact stage of e-commerce adoption in these SMMEs. It is clear that some SMMEs have adopted e-commerce whilst some have not. The discussion will now focus on factors influencing e-commerce adoption.

## **2.3 Factors influencing e-commerce adoption**

### **2.3.1 Perceived benefits**

According to Davis (1989:320) what causes people to accept or reject information technology, is the perceived usefulness and the perceived ease of use. Perceived usefulness means the degree that a person believes that using the technology would enhance his or her performance. Perceived ease of use is the degree, to which an individual believes that using a particular system will be free of effort. Reimenschneider, Harrison and Mykytyn (2003:281) suggest that small business executives adopt e-commerce because of its anticipated benefits and the social approval associated with doing so, while expected difficulties in implementing e-commerce are clearly distinct, but do not contribute to the eventual adoption intention.

Mehrtens, Cragg and Mills (2001:171) state that e-commerce adoption is influenced by three major factors. These are: perceived benefits, organizational readiness and external pressures. The perceived benefits relate to the relative advantage that a company expects from e-commerce.



### 2.3.2 Organizational readiness

Mehrtens *et al.* (2001:168-169) operationalized organizational readiness as a five level construct, that entails:

- The level of IT Knowledge amongst IT professionals
- The level of IT knowledge among non-IT professionals
- The level of IT use in the organization
- Financial resources available to adopt e-commerce
- Organizational size.

Mehrtens *et al.* (2001:169) do not find significant support of organizational size and financial resources influence on e-commerce adoption. This is mainly due to the fact that financial resources were not investigated in their study as most of their e-commerce adoption was accomplished in-house. The issue of organizational size irrelevance is highlighted by Williams *et al.* (1997)<sup>2</sup> in Mehrtens *et al.* (2001:169) who suggest that size is irrelevant due to the leveling effect of technology.

Molla (2002:230) conceptualizes e-readiness as both an organizational readiness and external readiness. Organizational readiness indicates the status of the organization in terms of awareness, commitment, governance and resources for e-commerce. External readiness reflects government, market forces and e-commerce readiness of supporting industries.

### 2.3.3 Product characteristics

According to Kiang and Chi (2001:30) product characteristics play an important role in determining whether or not an organization may benefit from

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<sup>2</sup> Williams, B.L., Ruzicka, M. E., Hershauer, J.C. and Carter, P. L. 1997. The role of organizational and interorganizational factors on planned adoption of electronic commerce. *Third Americas Conference on Information Systems*, Indianapolis, Indiana USA, August 15-17, 1997.

e-commerce. Peterson, Balasubramanian and Bronnenberg (1997:334-336) state that products that are expensive and infrequently purchased such as stereo systems are more suited to e-commerce, while low cost, frequently purchased products are not suited to e-commerce. Another aspect suggested by Peterson *et al.*(1997) is that certain types of intangible or service related goods based on digital assets are particularly suited to e-commerce. If the product or service is differentiable it will be suited to e-commerce.

#### **2.3.4 Industry sector**

Poon and Swatman (1999:4) suggest that industry sector influences e-commerce adoption. The authors posit that if an SME has a high percentage of its customers and competitor's trading online, not adopting e-commerce could be a competitive disadvantage. In addition if a business operates in the Information Technology (IT) or Internet services sector, it is Internet literate. This business has to "show-case" its expertise to existing customers. A similar view on the industry influence on e-commerce adoption is highlighted in Al-Qirim and Corbitt (2002:346) who posit that industry factors such as working in the IT field could lead to e-commerce adoption as this implies having e-commerce knowledge and expertise in-house. Furthermore Poon and Swatman (1999:14) suggest that the nature of business in the IT sector is such that IT can be used to make operations more effective. In contrast SMEs that are not from the IT sector would be influenced by the availability of external support from vendors and consultants to assist them during the adoption stage (Al-Qirim & Corbitt: 2002:347).

#### **2.3.5 Competitive environment**

The competitive environment further influences e-commerce adoption. SMEs that exist in an intensively competitive environment would perceive having e-commerce as a necessity to sustain their existence or gain competitive advantage (Tan & Teo 1998:5). In a competitive environment important determinants such as, buyers and suppliers influence e-commerce adoption.

Poon (2000:79) suggests that there is a strong influence of buyers on e-commerce adoption, because an SME may find their company more competitive and develop better customer relationships if the customers are participating in e-commerce. Van Akkeren and Harker (2003:208) add that an SME owner may be reluctant to adopt e-commerce unless there is a specific request for e-commerce by trading partners or customers.

### **2.3.6 Information Intensity**

Thong (1999:196) suggests that information intensity significantly influences e-commerce adoption. Businesses in different sectors have different information processing needs. Businesses in more information-intensive sectors are more likely to adopt Information Systems. Van Akkeren and Harker (2003:208) hold a similar view stating that the level of information intensity within the organisation influences technology adoption, as when large amounts of data and information are part of the business process, an SME is more likely to adopt technologies that streamline operations and lead to improved information processing.

### **2.3.7 SME manager's Characteristics**

According to Thong (1999:202) small business manager's innovativeness and IS knowledge influence Information systems adoption significantly and positively. He posits that SMEs whose managers perceive IS as beneficial, compatible, and relatively easy to use will be more likely to adopt IS.

### **2.3.8 Scope of intended benefits**

The extent to which e-commerce can be strategically positioned depends on the scope of e-commerce business and the intended benefits. For businesses to adopt and conduct e-commerce, many questions arise on how to go about entering the e-commerce arena. For example, must it be a totally new e-business or could an existing "brick and mortar" business be transformed into

an e-business. The organization would also need to decide whether they are aiming for international markets or only domestic ones. According to Bytheway and Goussard (2001:2) the following questions need to be investigated:

- whether the service is offered to existing customers or not,
- whether the organization is seeking new customers,
- whether the business will be working within the boundaries of its business, or affect the work of its business partners.

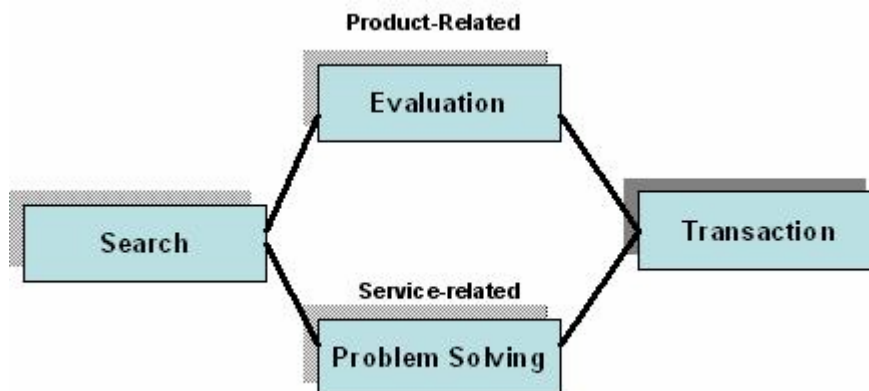
Furthermore, even if these questions are resolved, a further decision has to be made as to the stage at which the business should commence e-commerce adoption. To add to this uncertainty, Fillis, Ulf and Wagner (2004:187) suggest that there are differences in adoption stages and usage of e-commerce between countries. The various adoption models are discussed in detail later in this chapter. UNCTAD (2004:25) states that moving from simply connecting to the Internet towards integrating Information Communication Technologies (ICTs) in business applications is a major step for SMEs in developing countries. This integration requires management, technical skills, organizational changes and investment that can often not be afforded by the SMEs. At the same time commercial benefits, resulting from such changes may not always be obvious to the small business owners. A discussion of how e-commerce creates value follows.

## **2.4 E-commerce value creation**

Tagliavini, Ravarini and Antonelli (2001:212) state that real opportunities for e-commerce adoption for SMEs are still unclear and the main obstacle to the use of e-commerce amongst SMEs seems to be lack of knowledge about the actual advantages e-commerce offers businesses. A similar view is expressed by Lumpkin and Dess (2004:161) who find that many businesses are struggling to use the Internet for competitive advantage as it is not clear

to them how the Internet adds value to their businesses. According to Lumpkin and Dess (2004:162-164) there are four related value-adding activities that are revolutionized by the Internet, as illustrated in the Figure 2.1:

- Search activities, Internet enhances the search activities by enhancing both the speed of information gathering and the breadth of information that can be accessed.
- Evaluation activities, Internet enhances evaluation that is the process of considering alternatives and comparing costs and benefits of various options.
- Problem-solving activities, Internet improves problem solving, that is the process of identifying problems or needs and generating ideas of action plans to address the problems.
- Transaction activities, Internet lowers the cost of and speeds up the transaction process. Transaction activities are those that relate to the process of completing the sale, including contractual negotiations, making payments and taking delivery.



**Figure 2.1:** Internet Activities that add value Lumpkin and Dess (2004)

Lumpkin and Dess (2004:165) state that quality content that is strategically deployed provides companies with a way to effectively differentiate their product or service offerings. There are three types of content that can improve value proposition, these are;

- Customer feedback that contributes value, as customers often trust what other customers say more than promises made by the company and customer testimonials can build confidence in other buyers.
- Expertise that relates to providing new knowledge or unbiased information that can be used in problem solving. Expertise also involves educating the customers regarding the options and the implications of various choices.
- Entertainment programming that deals with providing interactive entertainment as the Internet is being used by more and more people as an entertainment medium. For example, some games are now encouraging consumers to buy something else online to play.

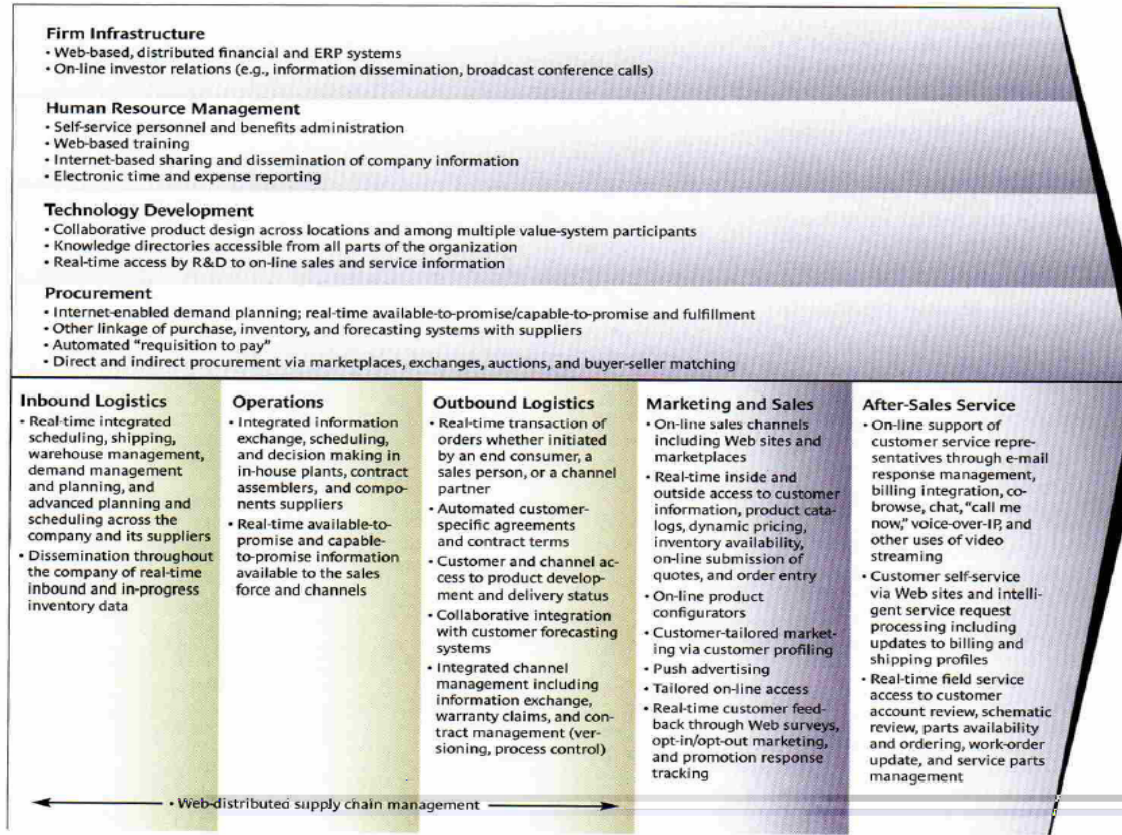
Lee (2001:355-358) suggests that e-commerce provides companies with additional opportunities for revenue generation, and therefore companies should set their focus beyond transforming traditional business practices. He proposes a five-step process which involves:

1. Redefining competitive advantage as the economics and speed of conducting business are changing and the management of fixed costs and customer expectations have become critical for success. This requires redefining competitive advantage in terms of cost, differentiation and marketing.
2. Rethinking the business strategy as e-commerce technologies make it cost-effective and easy for customers to interact with the company and revealing customers' purchase patterns and preferences. Companies must develop a strategy to make it

easier for their customers to conduct business with the company.

3. Re-examining traditional business and revenue models, to determine how the company is planning to create value in both the physical traditional business and with e-commerce.
4. Re-engineering the business and the website to implement customer centred systems that integrate suppliers, back office functions, and front office functions in order to achieve the organizational flexibility to satisfy customer demand.
5. Re-inventing customer service by involving customers in product development through initiating technology-facilitated dialogue.

Porter (2001:75) illustrates some of the common uses of the Internet on the supply chain that businesses have applied to create value. These are illustrated in Figure 2.2. The examination of how e-commerce is used in the value chain concludes the discussion of how e-commerce creates value. Benefits that a company may realize from adopting e-commerce are further examined.

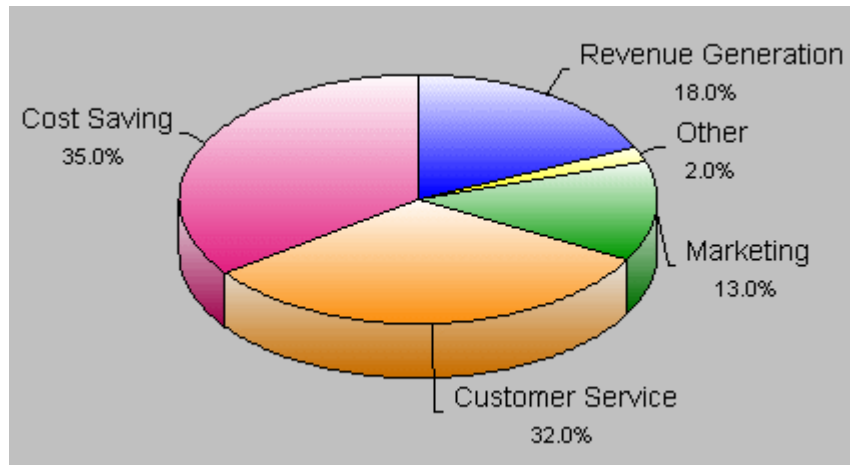


**Figure 2.2:** Common uses of Internet in the supply chain Porter (2001)

## 2.5 E-commerce benefits

Singh (2002:3) summarises the tangible e-commerce benefits of America's top 100 organizations in Figure 2.3. This Figure illustrates that e-commerce contributed 35% cost saving, 32% to customer service, 18% to revenue generation and 13% to marketing.





**Figure 2.3:** Value generated by America's top 100 Organizations Singh (2002)

## 2.6 Benefits various e-commerce adoption stages

There are different benefits at the various stages of e-commerce adoption. Tagliavini *et al.* (2001:215-220) state that effective use of e-mail could assist an SME to gain new customers, establish relationships and create brand loyalty by enhancing information interchange with current and potential customers as well as to carry out market research. Company websites range from simple websites with a few static pages, through a professional site providing information about the company activities, to dynamic pages that are directly linked to the company databases.

An effective website could widen the market by increasing company visibility, promoting company image, improving the quality of customer service and carrying out market research based on customer needs, thus differentiating the SMEs product. Leong, Stanners and Huang (1998:1257) add that the three most important website objectives are to enhance the corporate image, increase brand or product awareness and to provide customer service, whilst online sales was ranked lowest amongst 13 objectives. An Interactive website allows customers to order products online. Online processing facilities allow orders to be collected from the Internet and be automatically transmitted, thus being processed more quickly. Since customers are demanding speedy

service, reduction of waiting times could represent competitive advantage. Online payment processing optimizes business resources whilst increasing customer satisfaction by allowing the customer to conclude the transaction online (Tagliavani, *et al.* 2001:220). Kowtha and Choon (2001:239) add that an interactive complex website requires significant dedicated investments, skill acquisition and management commitment. The discussion will now focus on the critical success factors for e-commerce adoption.

## **2.7 E-commerce critical success factors**

Critical success factors were popularized by Rockart (1979:85); these are defined as the necessary limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization. Dobbins (2001:47) suggest that success is extremely difficult unless the critical success factors are accomplished. However, Tsao and Koong (2004:2001) posit there is lack of general agreement amongst researchers regarding what constitutes a critical success factor, thus making it difficult to compare studies and to generalize findings.

Sung (2004:14) reviewed e-commerce critical success factors studies and concluded that in Korea and Japan, speed is evaluated as more critical whilst security is rated higher in the USA. In Korea, Japan and USA the top four critical success factors are:

- customer orientation
- ease of use
- variety of goods and services
- delivery of goods and services.

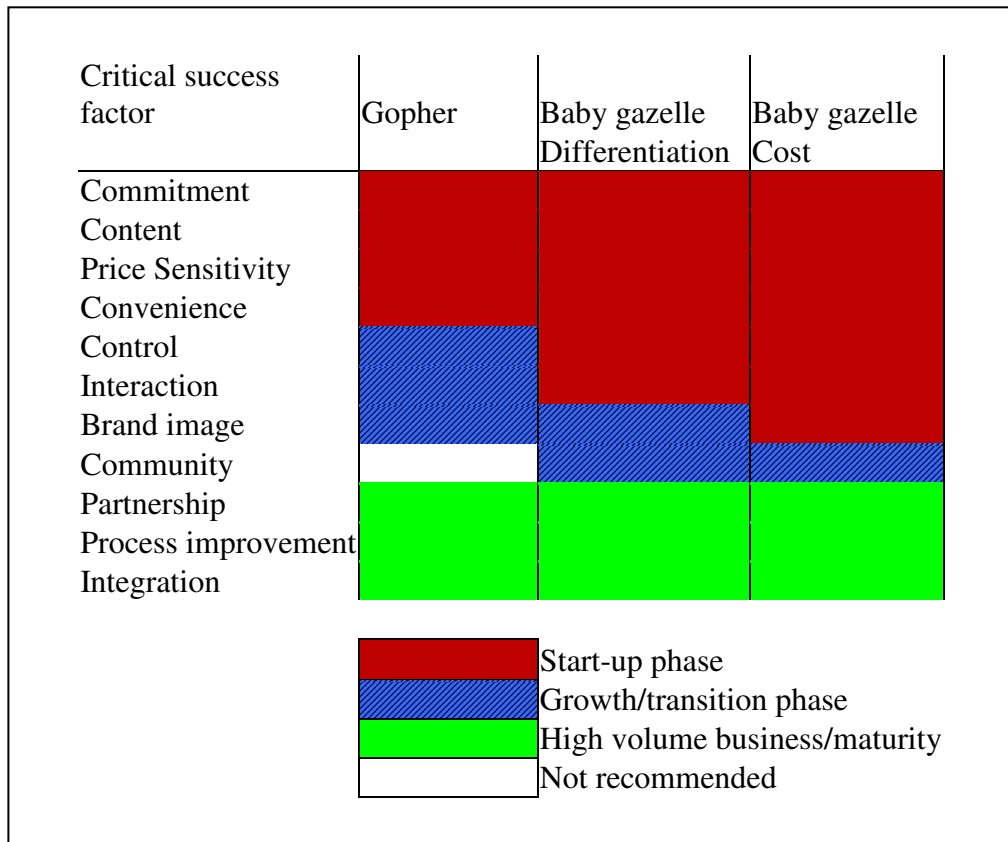
According to Zeelie (2003:164-165) the critical success factors in SMEs in e-commerce in the Port-Elizabeth area in South Africa are:

- targeting the right customer
- promoting the site
- top management support

- development of a business plan
- user friendly Web design
- secure infrastructure and scalable technical infrastructure
- involving all stakeholders in the venture
- branding the site.

The critical success factors identified in the above studies are not directly applicable to this research study because the critical success factors are not related to the stages of e-commerce adoption. However, Chappell *et al* (1999:11-12) identifies 11 critical success factors that are relevant to the various types of SMEs and linked to the different stages of e-commerce growth as illustrated in Figure 2.4. The study identifies 2 types of SMEs:

- Gophers that are focused on income generation
- Baby gazelles that are focused on growth. Baby Gazelles may pursue a differentiation or a cost focused strategy.



**Figure 2.4:**Critical success factors Chappell *et al.* (1999)

The detailed discussion of each of these critical success factors is illustrated in Table 2.1. Having examined e-commerce critical success factors, the research study now focuses on e-commerce strategies followed by SMEs.

## **2.8 SMEs Competitive e-commerce strategy application**

According to Borch, Huse and Senneseth (1999:1) the choice of a competitive strategy is one of the most important decisions to safeguard small business success. The initial deployment of e-commerce applications by the dot-com companies sought growth as a primary goal. It was only with the application of e-commerce by 'brick-and-click' companies that competitive advantage and profit considerations were emphasised (Karagozoglu & Lindell 2004:290). Chau and Turner (2003:3) state that SMEs with a static or dynamic interactive website view e-commerce as experimental, using e-commerce to complement marketing and sales function, applied independently of existing Information Systems. On the other hand, SMEs at the later stages of e-commerce adoption view e-commerce as central to operations and strategic in reducing costs, promoting greater efficiencies and enhancing customer service.

**Table 2-1: Critical Success factor competitive advantage Chappell *et al.* (1999)**

<b>Critical Success Factor</b>	<b>Definition</b>	<b>Competitive advantage</b>
<b>1.Content</b>	The presentation of a product or service offered over the Internet in a way that is attention-grabbing and compelling.	Customers are attracted to the site and persuaded to buy.
<b>2.Convenience</b>	The usability of the website for the purpose for which it was designed for example, to assist, buying or selling, to find information, to track a process.	Users find it easy to carry out the process, so they are more likely to use the site and return to it.
<b>3. Control</b>	The extent to which organizations have defined processes that they can manage. For example, an SME may have an agreed process with its fulfillment company whereby it is informed when its products are delivered to customers, or an SME may have a process for responding to customer queries within a certain timeframe; or for changing and updating information on its website.	The e-commerce business is efficient & responsive, and is well-positioned to be able to improve, automate and integrate processes in the future.
<b>4. Interaction</b>	The means of relationship-building with individual customers by providing timely pre-sales information and excellent after-sales support.	The business builds up a critical mass of loyal customers/partners.
<b>5. Community</b>	The means of relationship-building with groups of like-minded individuals/organizations by enabling the exchange of information and services tailored to the needs of the community.	The business builds a critical mass of highly loyal customers/partners.
<b>6. Price Sensitivity</b>	The Sensitivity of a product or service to price competition on the Internet.	The business positions itself as a leading supplier of a price-competitive commodity/ or non/less price-sensitive value-added product or service, depending on strategy.
<b>7. Brand Image</b>	The ability to build a brand name for the e-commerce business, and its products and services, using online and offline brand-building techniques.	The more awareness a business can generate for its site, the greater the volume of traffic and potential for sales.
<b>8. Commitment</b>	A strong motivation for using the Internet and the will to innovate	The e-commerce venture is driven by a strong vision that motivates all concerned to succeed.
<b>9. Partnership</b>	The extent to which an e-commerce venture uses partnerships to leverage Internet presence and expand its business.	Partners can extend the market reach of an e-commerce company and enable it to provide services it would otherwise not have the resources to carry out
<b>10. Process Improvement</b>	The extent to which companies can change and automate business processes.	The business can respond quickly and cost-effectively to new market opportunities
<b>11. Integration</b>	The provision of links between underlying IT systems in support of partnership and process improvement.	Integration enables companies to carry out new and extended (extranet) business processes in real-time, reliably and cost-effectively

Neumann (1994) in Raghunathan and Madey (2001:934) state that competitive advantage is realized when a firm increases its market share, gains new customers, improves customer loyalty, lowers production costs or succeeds with new products and services. According to Karogozoglu and Lindell (2004:290-291), competitive advantage and profit considerations are crucial in SME e-commerce adoption, as SMEs have limited financial resources and cannot afford to sustain failure. Therefore, choosing an e-commerce application for SMEs is a strategic decision that must be made in the context of supporting the organization's competitive advantage. Competitive strategy is more than operational effectiveness, it is either choosing to perform activities differently or to perform different activities from rivals (Porter, 1996:64).

Competitive forces affect the strategic choices made by SMEs and these choices are further influenced by the attitude of SMEs towards growth. SMEs can be classified according to their attitude towards growth, into *growth-oriented companies* or *income generating companies*. Growth-oriented SMEs primary purpose is to grow in contrast to income generating SME's whose primary purpose is to generate income for the owners (Chappell *et al.* 1999:5). According to Jeffcoate, Chappell and Feindt (2002:127) most SMEs do not formally define or understand their competitive strategy, which weakens their position in their chosen market. According to Miller and Toulouse (1986:49), SMEs tend to favour a differentiation strategy due to their inability to utilize economies of scale. Income generating SMEs are likely to pursue a differentiation strategy remaining in a niche market and providing differentiated products and services. The growth oriented SMEs pursuing a differentiation strategy will seek to broaden markets for differentiated products and services by replicating their success in other geographic areas and market sectors. The strategic goal in these enterprises is to be the leading provider of value-added services enabled by the Internet. The growth oriented

SMEs that focus on cost are seeking to become price leaders in focused markets, because as SMEs they cannot hope to become cost leaders in a broad market (Chappell *et al.*, 1999:13).

Karagozoglu and Lindell (2004:292) suggest that SMEs may also favour combinations of cost leadership and differentiation strategies. Chappell *et al.* (1999) caution against such a strategy arguing that failure to make a choice between the strategies leads to trying to do everything that results in below average performance and leaving the company with no competitive advantage. The authors cite Haynes, Becherer and Helms (1998:234)<sup>3</sup> who indicate that medium-sized enterprises in particular may be at risk of falling into a 'stuck in the middle' strategy because of slow adoption of Internet capabilities. According to Karagozoglu and Lindell (2004:291) choosing a particular e-commerce application is a strategic decision that must be made in the context of the company's competitive strategy.

Tribunella (2001:2-3) suggests that for e-commerce activities to add value they must facilitate organizational strategy. Therefore, a systematic approach with emphasis on strategy must be undertaken where market reality demands effective e-commerce business strategy that responds to customer expectations and competitive pressures. Furthermore, a business should not accept e-commerce systems before it has a clear understanding of how the site will facilitate business strategy.

Saban (2001:26-30) states that some companies that rush to try and capitalize on e-commerce, often skip strategy development leading to failure to meet expected results. Moreover, companies that are strategically prepared are in a better position to maximize e-commerce benefits. Strategic preparedness requires a strategic business model that administers a

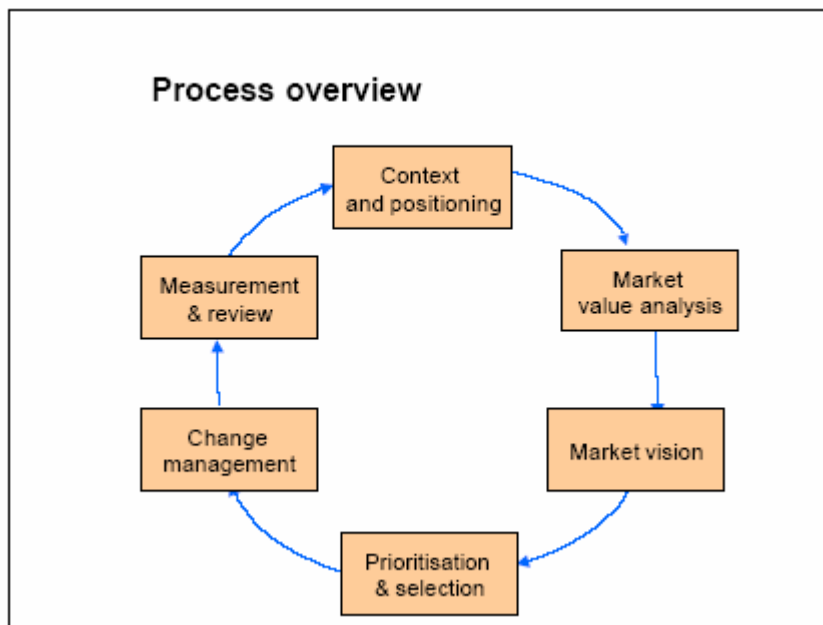
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<sup>3</sup> Haynes, P., Becherer, R. & Helms, M. 1998. Small and mid-sized business and Internet use: unrealized potential ?Internet Research: Electronic Networking Applications and Policy 8(3):229-235

comprehensive and flexible plan that aligns e-commerce strategy to business strategy. The strategy development process will be discussed next.

## 2.9 E-commerce Strategy Development process

According to Daniel, Wilson, McDonald, Ward, Hemingway and Murray (2000:36-37), e-commerce strategy development is a six-stage process as illustrated in Figure 2.5.



**Figure 2.5:** E-commerce strategy development process Daniel *et al.* (2000)

### 2.9.1 Context and positioning

Strategy development starts with context and positioning that sets the role of e-commerce examining the industry and organizational positioning within the industry. Positioning further involves the identification of organizational objectives and the relevant aspects of capabilities. Capabilities can be examined in the light of resource-based theory (RBT). According to RBT in the short run, competitiveness derives from price/performance attributes of current products, whilst in the long run competitiveness derives from the ability to build at a lower cost and more speedily than competitors and the core competencies that produce unanticipated products. Core competencies



are identified as resources that provide potential access to a wide variety of markets and make significant contribution to the perceived customer benefits of the end product. A core competence should be difficult for competitors to imitate and will be difficult if it is a complex harmonization of individual technologies and production skills (Prahalad & Hamel, 1990:81-84).

Zhuang and Ledrer (2001:959-960) state that according to RBT e-commerce technology would not provide competitive advantage as it can easily be imitated. This implies that businesses should make diligent efforts to protect their e-commerce technology resources from imitation as best as they can. Chang, Jackson and Grover (2003:665-671) state that e-commerce could increase an organization's ability to sense and respond to the market needs by collecting and disseminating market information. However adopting e-commerce does not ensure competitive advantage because the technologies are open and available to competitors. Integrating e-commerce with its strategic orientation would be more likely to leverage complementary assets and achieve efficiency and effectiveness benefits. In contrast, if e-commerce is not integrated, the company may not garner the appropriate resources that create unique capabilities necessary for competitive advantage, but only a potentially useless appendage to the business.

### **2.9.2 Market value analysis**

Market value analysis deals with examining the organizational place within the current structure. Porter (1980:3) suggests that the essence of formulating competitive strategy is to relate a company to its environment. This could be done using Porter's competitive forces as illustrated by Daniel *et al.* (2000:41) in Figure 2.6.

Porter (2001:64-65) argues that the use of the Internet does not itself confer competitive advantage. Effective e-business strategies should be based on sound strategic principles that will address competitive forces. Furthermore, a

review of a wide range of industries in which the Internet is playing a role reveals that the Internet has a significant impact on the competitive forces.



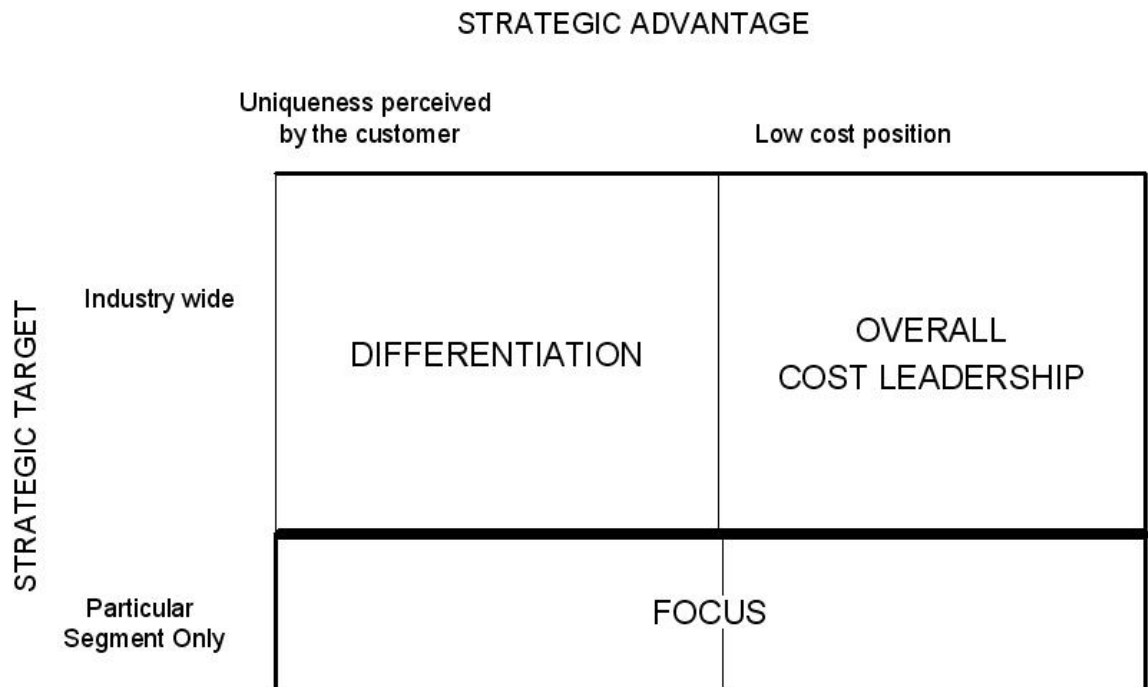
**Figure 2.6:** Porters Competitive Forces Daniel *et al.*(2000)

These competitive forces are:

- Increased buyer's bargaining power by providing buyers with easier access to information.
- Intensified rivalry amongst competitors by expanding the geographic market and creating new substitutes.
- Reduced variable costs tilting cost structures toward fixed costs creating pressure for businesses to engage in destructive price competition.

- Whilst the Internet makes it easier for the buyers and sellers to transact, it makes it more difficult for businesses to capture these benefits.

Porter (1980:35) suggests that in coping with the five competitive forces, there are three potentially successful generic strategic approaches. These are overall cost leadership, differentiation and focus as illustrated in Figure 2.7.



**Figure 2.7:** Three Generic Strategies Porter (1980)

A cost leadership strategy based company sets out to become a low cost producer in its industry by pursuing economies of scale, proprietary technology, preferential access to raw materials and other factors. A cost leadership strategy requires sustained capital investment, process engineering skills, intense supervision of labour, products designed for ease in manufacturing and low cost distribution systems. Furthermore, the

organization has a tight cost control, frequent detailed control reports, structured organization and responsibilities with incentives based on meeting strict quantitative targets (Porter, 1980:35-36). According to Barnes, Hinton and Mieczkowska, (2004:607-608) cost reduction may be achieved by reducing the cost of acquisition of inputs and improving efficiency internally and across the supply chain by improving communication. However, any such advantage from reducing operating costs may be short-lived. Lumpkin, Droege and Dess (2002:329) state that e-commerce offers new ways for cost leaders to minimise costs not just in the business to consumer area but also in the business-to-business area. Cost leaders need to re-examine transaction costs from procurement to distribution as well as in the after sale service. Thus, e-commerce offers cost leaders competitive advantage by reducing costs in primary activities such as marketing and support activities such as purchasing through on-line procurement. According to Lumpkin *et al.* (2002:330) cost leaders can reduce value chains costs in a variety of ways such as:

- Web-based inventory control systems that reduce storage costs by providing real-time ordering and scheduling to manage demand more efficiently.
- Direct access to status reports and the ability for customers to check work-in-progress to minimize re-work.
- On-line bidding and order processing to eliminate the need for sale calls and decrease sale force expenses.
- On-line purchase orders for paperless transactions to decrease costs for both the supplier and the purchaser.
- Collaborative design efforts to reduce the cost, inefficiency and cycle time for new product development.
- On-line testing and evaluation of job applicants by human resource departments.

A differentiation strategy seeks to offer unique products and services to the customer along some dimension that is widely valued by buyers. For example brand or image, technology, features or customer service. A differentiation strategy needs a trade off with cost for achieving the differentiation. A differentiation strategy requires strong marketing abilities, product engineering, creative flair, a strong capability in basic research, a firm reputation for quality or technological leadership, strong cooperation from channel partners or a unique combination of skills drawn from other business (Porter,1980:37-38). According to Barnes, Hinton and Mieczkowska (2004:608-609) a differentiation strategy requires a coordinated action between supply, internal and sales operation. Lumpkin *et al.* (2002:330) argues that to achieve differentiation advantages, price premiums must exceed the extra costs incurred in being unique; therefore, a business following a differentiation strategy must attain a level of cost parity or proximity relative to competitors. Internet enhances customisation by facilitating direct communication between manufacturers and consumers. On-line mass customization has enabled firms to decrease costs whilst enhancing product offerings, maintaining reputations for quality and preserving brand image. The Internet has led to changes in the way customers view quality. Customers are now demanding fast response and delivery, accuracy in order processing and customised products. Lumpkin *et al.* (2002:331) states that in order to differentiate themselves differentiators are using the Internet in various ways such as;

- Providing Internet-based knowledge management systems to link various parts of the organization to shorten customer response times.
- Real-time access to manufacturing operation status to assist channel partners and sales force.
- Rapid on-line response service requests and improved marketing efforts by providing fast feedback to customer surveys and product promotion.

- Access to real-time sales and service information to continually update research and development efforts.
- Automated procurement and repayment systems to provide suppliers and customers detailed status reports and purchasing histories (Lumpkin *et al.* 2002:331).

A focus strategy aims at a narrow competitive scope within the industry and pursues either a differentiation or a cost focus. A focus strategy is constrained by similar requirements depending whether the focus is on differentiation or cost (Porter,1980:38-39). Lumpkin *et al.* (2002:331) suggest that the Internet offers new opportunities to access markets at reduced costs and provides opportunities to provided specialised services and features. According to Lumpkin *et al.* (2002:332) businesses that are using a focused strategy are using the Internet in many ways that include;

- Permission marketing techniques where sales efforts are directed to specific customers who opt to receive advertising notices.
- Chat rooms, discussion boards and member functions for customers with common interests are provided.
- Niche portals targeting groups with specialized interests.
- Streamlined browsing capabilities to focus customer search efforts.
- Virtual organizing to minimize infrastructure requirements.
- Procurement efforts to match buyers and sellers.

According to Lumpkin *et al.* (2002:332-333), the Internet provides business opportunities as well as challenges for a business as the service capability offered by the Internet is easily imitated and firms with more resources could simply imitate successful start-ups without the risk involved in being the first to market with new technology. For cost leaders e-commerce can strengthen the overall cost leadership position by reducing inventories, and by using real-time communication to make production schedules, warehouse management,

and delivery systems more efficient. Internet strengthens the bargaining power of buyers, because business can reach end users more efficiently. However, the advantages can be quickly eroded by imitation and comparative shopping becomes easier as information asymmetry is decreased.

Differentiators may gain distinct advantages by providing highly tailored customer management systems to enhance sales efforts, provide rapid feedback to customers and suppliers, giving real-time solutions to service problems. Differentiation creates capabilities that are so tailored for a given customer that the chances of a customer turning to other solution providers through imitations or substitutes are greatly reduced. However, differentiators have to position their products as unique and valuable to the customer. Customers determine the value of products and services. Differentiators have to transform the uniqueness into value, hence Internet customers are accustomed to getting on-line information free.

Businesses employing a focused strategy e-commerce provide capabilities to capture a specialized market niche. E-commerce technological capabilities can be used to satisfy the needs of a particular market and reduce the threat of new entrants by firmly establishing a particular company as the customer's valued provider. The limited size of specialized markets serves to discourage new entrants who would need to compete for a limited market share. However, businesses must be careful not to misread the scope and interests of the target market as this could result in the business losing their uniqueness by going after an overly broad market. Efforts to appeal to a broader audience through additional inventory, content, and services can cause firms to lose the cost advantages associated with limited scope. When the product offerings are overly narrow, the company will have trouble generating enough customer demand.

The market should be big enough to be profitable, but small enough to lessen the attractiveness to potential new entrants. Lumpkin *et al.* (2002:334) argues that e-commerce offers few opportunities for sustainable advantages as the Internet diminishes differentiation advantages. This is due to the ability of the customer to more easily compare products and services online. To gain competitive advantage companies need to integrate low-cost and differentiation strategies and focus on providing a unique value to the customer in an efficient manner. However combining the strategies is challenging and requires strong leadership to maintain an integrated multi-dimension strategy. Companies that want to adopt a focus strategy for success must use e-commerce to capture a previously inaccessible market niche or develop highly specialized capabilities. Focus strategies are expected to increase as the Internet provides highly targeted products and services and easier access to narrow or specialised markets.

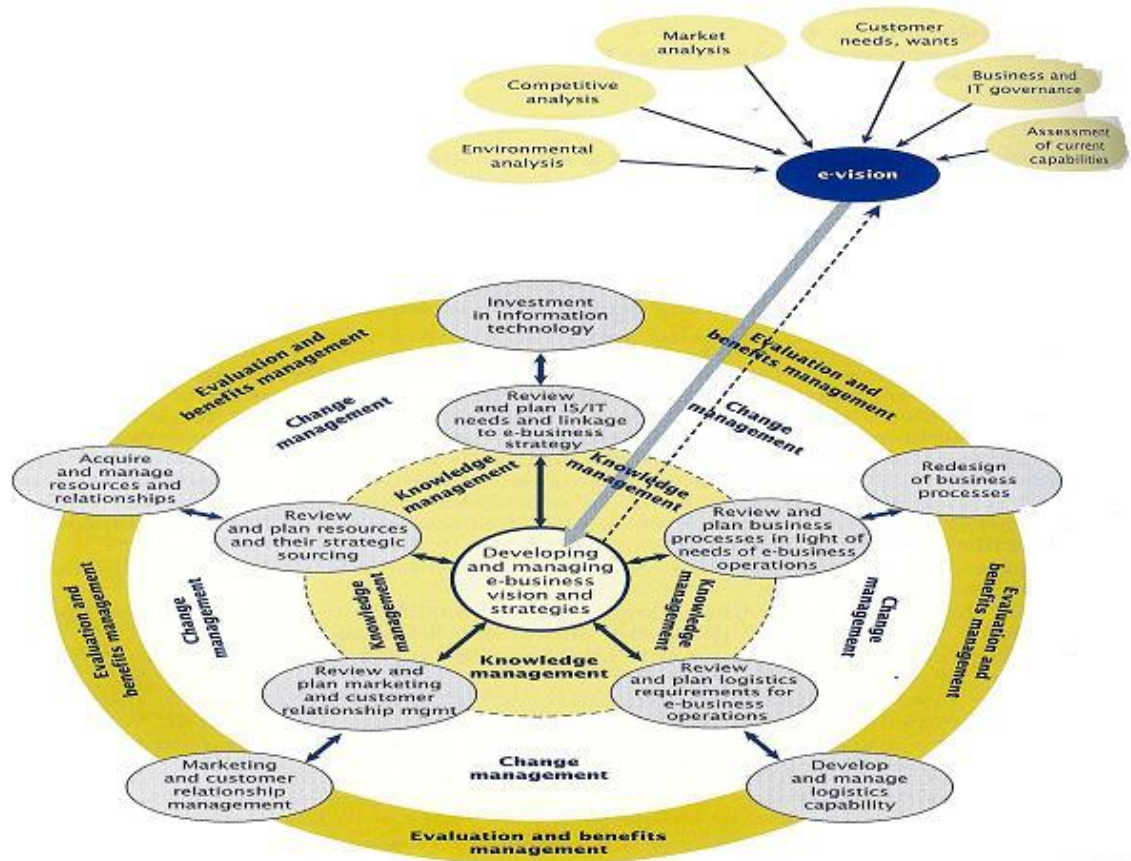
### **2.9.3 Market Vision**

Market vision deals with setting the companies vision using the results from context positioning market analysis. McKay and Marshall (2004) discuss the framework for developing an e-business vision that can be applied to developing an e-commerce strategy. According to this framework, developing an e-commerce vision is a two-step process that starts with developing a broad vision of e-commerce based on environmental analysis, competitive analysis, market analysis, customer needs, and business and information technology governance as well as current and future requirements. Once the vision has been established Marshall and McKay (2004) recommend the use of the framework in Figure 2.8 to support strategy development. According to this diagram, strategy development involves the following key functions:

- Investment in appropriate information technology systems
- Appropriate re-engineering and redesign of business processes



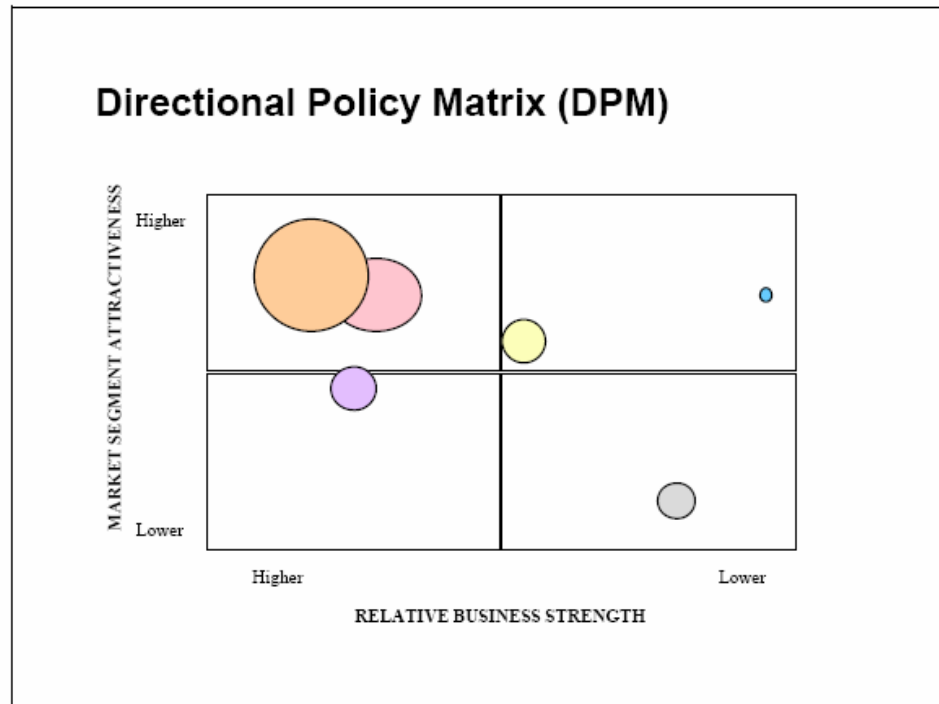
- Development and management of efficient and effective logistics capability
- Effective marketing and customer relationship management
- Effective and efficient acquisition and management of resources.



**Figure 2.8:** E-strategy formulation framework Marshall and MacKay (2004)

#### 2.9.4 Prioritisation and selection

Prioritisation and selection entails generating options and selecting the best course of action based on priorities. According to Daniel *et al.* (2000:61-62), prioritisation and selection can be undertaken using the directional policy matrix illustrated in Figure 2.9 to examine the attractiveness of a product-market against the organisation's current and potential strengths.



**Figure 2.9:** Directional policy matrix Daniel *et al.* (2000)

Having examined the directional policy matrix, the company would need to use the competency matrix to compare the organization's potential value of an initiative with the ability to carry out an initiative. Followed by a dependency matrix to look at how dependent the company is on others in order to carry out the initiative. A sample dependency matrix is illustrated in Figure 2.10.

**E-COMMERCE INVESTMENTS**  
- A possible option assessment technique

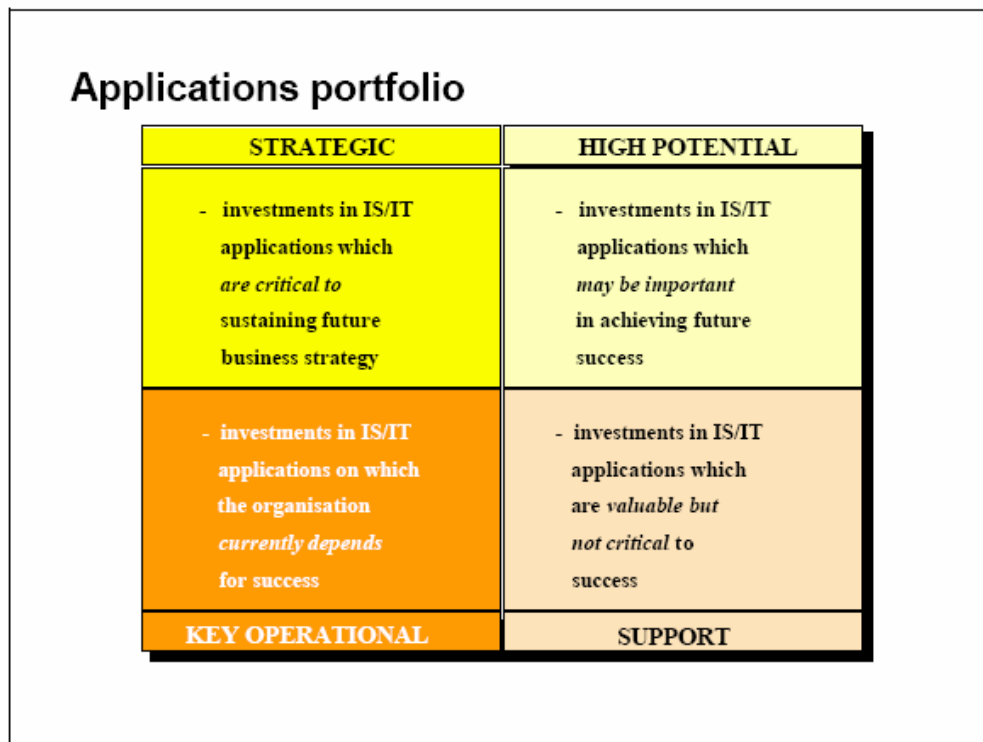
Intended Effect(s)	Degree independence of action		
	Can do it alone	Need to involve partners	Depend on a third party
Win business in target segments			
Extend Customer base			
Major product/ service enhancement or 'New' Product			
Major cost reduction -transaction -infrastructure			
Business/brand protection by new e-commerce business but retain old means			
Avoid significant loss of profitable business			

**Figure 2.10:** Dependency matrix Daniel *et al.* (2000)

Once the dependencies have been identified, the organization needs to compare the impact of an initiative with its urgency. The factors that are likely to increase an impact of an option is if it will increase revenues, improve customer satisfaction or retention or if it will reduce costs. The factors that are likely to increase urgency are if there is a demand from current customers, competitive pressures and system continuity issues.

## 2.9.5 Change management

This covers the planning and implementation of the selected projects, including the necessary changes to the way the organization conducts business and information technology projects. Change management requires that projects be categorised according to objectives and that encourage project management to pursue relevant objectives. Projects can be prioritised using the application portfolio as illustrated in Figure 2.11.



**Figure 2.11:** Application Portfolio Daniel *et al.* (2000)

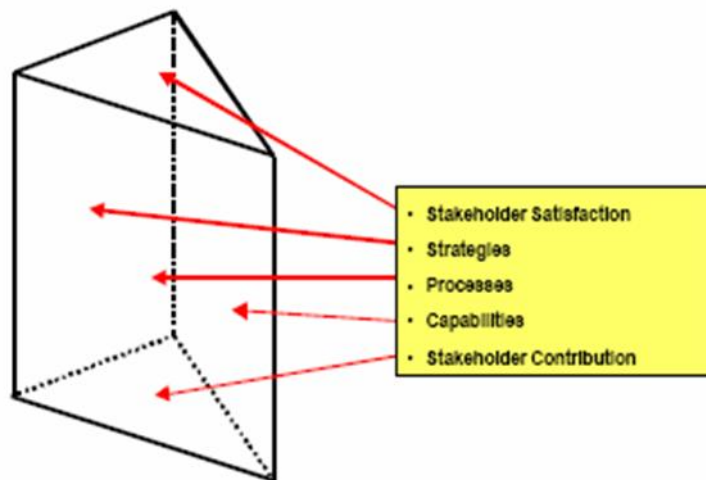
However according to Daniel *et al.* (2000:66) e-commerce projects can be in any of the four portfolios, resulting in the need for increased research and development and experimentation of prototypes for “market testing” of concepts. Change management also requires that the benefits dependency

networks relevant to project objectives are established to ensure that the necessary business changes are made where necessary.

### 2.9.6 Measurement and review

This is the stage where the adopted strategy is measured. Questions should be developed in line with the performance prism illustrated below in Figure 2.12. Performance prism must address the following questions according to Daniel *et al.* (2000:74-75):

- What is stakeholder satisfaction in terms of who are the stakeholders and what they want?
- What strategies must be in place to satisfy these needs?
- What critical processes are required execute these strategies?
- What capabilities are required to operate and enhance these processes?
- What contribution is required from the stakeholders to maintain and develop these capabilities?



**Figure 2.12:** Five faces performance prism Daniel *et al.* (2000)

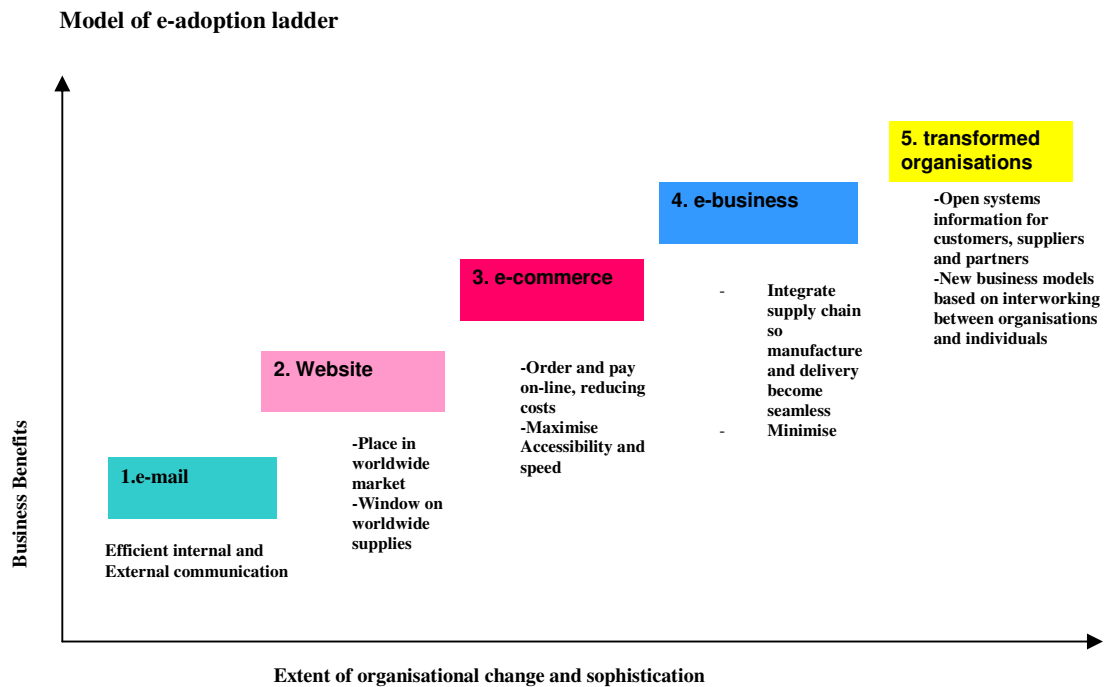
Once the questions have been identified, the company will need to develop design measures that will provide answers to the questions. In identifying the design measures the company must identify the measures required; measures that already exist and any new measures that are required. The design measurements concludes the examination of the e-commerce strategy development process, the discussion will now focus on the various e-commerce adoption models.

## **2.10 E-commerce adoption models**

From the literature, it appears that for a business to adopt e-commerce there are two possible approaches to follow. The first approach is the “adoption ladder” proposed by a number of researchers and in essence is a “step-by-step” process. These steps are e-mail, static website, e-commerce, e-business and e-enterprise (Van Akkeren & Cavaye 1999; Hoque 2000; Willcocks & Sauer 2000; Parish, Kibblewhite, Woodley & Richardson 2002; Jones *et al.* 2003; Vosloo 2003; and Teo & Pian 2004). An example of e-commerce “adoption ladder” is the Cisco’s adoption ladder given in Figure 2.13. The model illustrates the “step-by-step” stages in e-commerce adoption. According to Levy and Powell (2003:173) e-commerce adoption is predicated as an “adoption ladder” or stages of maturity model. This model requires that the company start on the bottom rung of the ladder for upward progression. A similar view is held in Castleman and Cavil (2001:3) who refer to an “adoption ladder” as an “ad hoc gradualism” where e-commerce is adopted in a gradual sequential steps and its main advantage is allowing businesses to gradually build e-commerce skills. However there is a drawback to this approach: it may result in a lack of focus because there is often no agreed e-commerce strategy.

The second approach is the “strategic managed” and these authors argue that reaching the e-commerce adoption stage is as a result of management

decisions and that a business would prefer to directly adopt e-mail, a static website, e-commerce, e-business or an e-enterprise directly, depending on the strategic decision of the business (Angehrn, 1997; Blackburn & Athayde 2000; Southern & Tilley 2000; Martin & Matlay, 2001; Foley & Ram 2002; Chau & Turner, 2003; Levy & Powell 2003; Rao, Metts & Monge 2003).



Adapted from Cisco led Information Age partnership study on e-commerce in small business

**Figure 2.13:** Cisco "adoption Ladder" Parish *et al.* (2002)

E-commerce adoption models are summarised in Table 2.2 under “adoption ladder” and “managed strategic adoption”. Van Akkeren and Cavaye (1999:4) state that e-commerce adoption is a progression and sophisticated technologies are unlikely to be adopted before entry-level activities are more readily used. Entry-level activities such as e-mail act as a starting point from which more sophisticated e-commerce activities can be developed. The “adoption ladder” models in Table 2.2 support this view.

**Table 2-2: E-commerce adoption models**

<b>Date</b>	<b>Author</b>	<b>Model</b>	<b>Stages</b>
<b>"Adoption ladder"</b>			
2000	Hoque	e-Enterprise Transformation model	Brochureware → e-commerce → e-business → e-enterprise
2000	Willcocks and Sauer	Moving to e-business four stage model	Web-presence → Access info - transact Business → Further integration of skills processes, technologies → Leverage capability Experience and know-how to maximize value
2002	Parish <i>et al.</i>	Cisco's Model of e-adoption ladder	e-mail → website → e-commerce → e-business → transformed organisation
2003	Jones <i>et al.</i>	Normative Web-based Commerce Adoption	Firm behaviour → Market Orientation → Cooperative Behaviours → Bus. Model Dev. → Value Chain Reconfig. → Web-based Value
2003	Vosloo	Albrink Four Stage Evolution model	Grassroots level → Focal point → Structure Development → Endgame
2004	Teo and Pian	Web Adoption Model	No Website → Presence → Prospecting → Business integration → Business Transformation
<b>"Managed strategic adoption"</b>			
1997	Angehrn	ICDT Model	Virtual Info. Space & Virtual Comm. Space & Virtual Trans. Space & Virtual Distribution Space
2002	Fooley and Ram	Publicise Interact Transform (PIT)	Publicise → Interact → Transform
2003	Chau and Turner	Four Phase Model of e-commerce Utilization among SMMEs	Static Web Presence → Dynamic Interactive → Substantial Re-engineering → Virtual Business
2003	Levy and Powell	Segmentation strategy for SME Internet adoption	Brochureware → Business Opportunity → Business support → Business Development
2003	Rao <i>et al.</i>	Stage Model for e-commerce development	Presence → Portals → Transaction Integration → Enterprise Integration



The “managed strategic adoption” models in Table 2.2 have an opposing view. These models provide for flexibility suggesting that SMEs adoption of e-commerce need not follow similar “ladder adoption” approach in all organizations. Taylor and Murphy (2004:284), state that “adoption ladder” implies that SMEs need to follow one prescribed course and that not reaching the top of the e-commerce “adoption ladder” represents failure. Rao, Metts and Monge (2003:15) argue that with “managed strategic adoption” an SMME may progress to e-commerce at any stage as technology and e-commerce awareness increases. It is possible that a given company will enter at a later stage by leapfrogging earlier stages in order to accelerate its e-commerce adoption process. Hackbarth and Kettinger (2004:276) caution that companies must ensure that they do not react too slowly to external competitive pressures nor innovate too quickly beyond their ability to leverage resources.

Southern and Tilley (2000:152) found that when small firms use technology, complex relations unfold. The adoption process is by no means a simple “adoption ladder” whereby observers can expect an incremental build-up of knowledge and expertise in Information and Communication Technology (ICT) to be established within the firm. The expertise can be negatively impacted, as knowledge is lost when personnel leave and is distorted through aggressive marketing of technology by suppliers or advice given by consultants.

Martin and Matlay (2001:401) argue that the actual design in the “adoption ladder” may be problematic, as it tends to oversimplify complex issues and circumstances, by treating SMEs as a homogeneous group. However, SMEs are heterogeneous and a complex mix of economically active units with different characteristics. For example, these models fail to recognise that some SMMEs are internationally focused whilst others remain locally focused. Blackburn and Athayde (2000:291) identify sector heterogeneity not only by size and sector but also by the level of internationalisation, type of exporting

activities, awareness of benefits, type of customers and imposition by larger trading partners.

Hackbarth and Kettinger (2004: 273) argue that whilst some companies follow the “adoption ladder” with gradual business process improvements, other companies aspire to rapidly achieve business innovation with a leapfrogging strategy. Hackbarth and Kettinger (2004:273,281) state that companies adopt leapfrogging strategies when faced with more severe external competitive pressures, such businesses must scan the environment to evaluate barriers to entry, customer power, supplier power and new entrants to the market. To adopt leapfrogging strategy businesses must have internal user involvement that involves availability of in-house IT expertise and the cultural capacity to change. They also need to exhibit a comfort level with new technologies and have sufficient availability of resources to adopt IT. Such businesses have leadership in terms of senior management commitment and willingness to impact people. The businesses have an accommodating firm structure that accepts paradigm shifts and allows cross-functional decision making.

An “adoption ladder” approach is less advantageous as the potential benefit of using e-commerce increases as SMEs embark on later stages on the e-commerce adoption path (Chau & Turner, 2003:4). The “adoption ladder” approach suggests that it is easier for SMMEs to adopt an “adoption ladder” as opposed to offering them advanced e-commerce capabilities from day one when launching their e-commerce initiatives. However, examples are beginning to emerge of SMEs beginning their e-commerce adoption initiatives at later stages of the e-commerce adoption.

According to Warden and Remenyi (2005:1-13), 1time Airline, operating in South Africa, followed a “managed strategic adoption” approach. It was found that this was a small business that started in 2004 with a few staff members and from day-one the management of the airline decided that they would

predominantly use the Internet for their ticket sales while selling only a small percentage via a call centre and at airports. According to the authors 70% of airline tickets are purchased online, 30% via the call centre and airport kiosks.

In the 1time case where a “managed strategic” adoption route was followed the presence of the factors that led to acceleration of e-commerce are discussed. The environment posed severe external pressure for 1time as Warden and Remenyi (2005:2) indicate that no less than three airlines had failed in South Africa over the previous decade. The emergence of 1time Airline was welcomed by the public but not by the other carriers. For example 1time Airline found it difficult to acquire adequate space for their representatives in the major airports. According to Warden and Remenyi (2005:4-12) the company aspired to offer something new and fresh to the customer. 1time Airline had strong leadership who had experience in aircraft maintenance who believed the success of a Low Cost Airline was highly dependent on its website. The company sought an ICT group as a shareholder, which provided IT maturity for the company. There was a high user involvement in the company and employees were carefully selected according to intimate knowledge of the airline industry. The company had an accommodating structure that was flat and encouraged a hands-on management approach. This allowed for cross functional decision making.

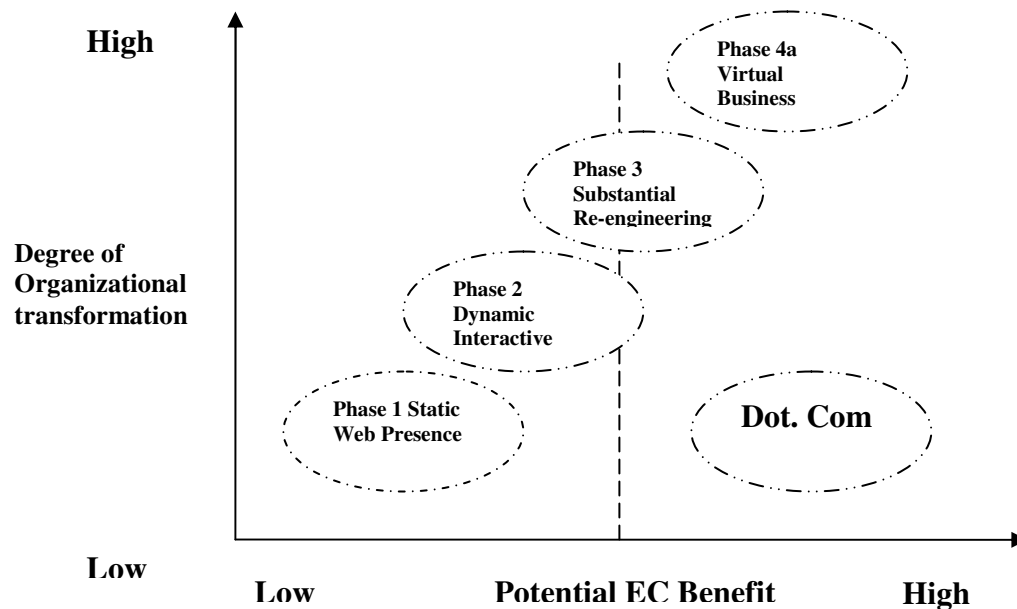
### **2.11 Rationale for the proposed Research Model**

Reviewing the e-commerce models the researcher decided not to test the applicability of “adoption ladder” models as criticism was levelled at this models for understanding e-commerce adoption levels for the heterogeneous SMEs sector (Southern & Tilley 2000; Martin & Matlay, 2001; Blackburn & Athayde 2000). The researcher chose to test the applicability of one of the “managed strategic” adoption models.

This research study uses a research model proposed by Chau and Turner (2003:1-11) of an Australian e-commerce adoption model, to determine the suitability of a “managed strategic” adoption for SMMEs in the context of the Western Cape of South Africa. The Chau and Turner model (2003:4) given in Figure 2.14 will be used. According to Chau and Turner (2003:4) the model is based on Venkatraman’s (1994) work on identifying association between potential benefits enabled by investment in information technology and the levels of organizational transformation. According to Venkatraman, (1994:74) it is important to understand that the stages are not conceptualised stages of evolution because effective strategies do not follow any one prescribed model of evolutionary stages. Furthermore, the higher levels of transformation indicate potentially greater benefits; however they also require correspondingly higher degrees of organizational changes. The Chau and Turner (2003:4) model views e-commerce utilisation in SMEs as following a similar path and the model further suggests that dot-coms with no prior trading experience may potentially acquire the same benefits as SMEs in the final phase without necessarily having had to undergo extensive organizational transformation.

This model provides a close fit for this research study investigating the uptake and use of e-commerce amongst SMEs. This research study investigated SMEs in seven different industries including agriculture, the retail trade, hospitality, education, communications and manufacturing. In order to avoid falling into the trap of treating SMMEs as homogeneous, the proposed research will study applicability of the model taking into account the industry differences amongst the SMMEs in South Africa.

## Four Phase Model of e-commerce utilisation among SMEs



**Figure 2.14:** E-commerce adoption model Chau and Turner (2003)

In Chau and Turner (2003:1-11), multiple case study strategy was applied. The study used semi-structured interviews to capture the learning experiences and insights from the organizations that were involved with e-commerce. In all cases, the owner manager of the business was interviewed. A preliminary analysis of their case studies revealed that SMEs did not necessarily undertake an evolutionary path to e-commerce but embarked on e-commerce at any one of the phases. Furthermore SMEs migrated between the phases or jumped phases depending on the level of organizational transformation applied. In addition, the position of a particular SME on the e-commerce adoption path depended on the strategic choices made by management.

In summary, this chapter examined the background to e-commerce adoption with regards to the level of e-commerce adoption in SMMEs and in South Africa. The chapter also discussed e-commerce adoption factors, how e-commerce creates value and the e-commerce strategy. The benefits of e-commerce, critical success factors and e-commerce adoption models were examined. The chapter concluded by proposing a research model to determine the suitability of the Chau and Turner (2003:1-11) “managed strategic” adoption in SMMEs in the Western Cape. Chapter 3 elaborates on the research methodology for this study.

### **3 Chapter 3: Research Methodology**

#### **3.1 Introduction and Background**

The objective of this research study is to propose a useful and practical model that will assist SMMEs that choose to adopt e-commerce in the Western Cape, to select between the available approaches. In this chapter, the research method, research tactics and research environment is formulated. This is followed by a discussion of sampling techniques, research time dimensions, ethics and qualitative data analysis. In conclusion, the questions posed to the target population are highlighted.

According to Mouton (2001:57) research methodology focuses on the research process and the kinds of tools and procedures to be used. Chapter 2 identified “adoption ladder” and “strategic managed adoption” as two available approaches for e-commerce adoption however criticisms was levelled at the “adoption ladder approach. A suitable research methodology needs to be selected for collecting evidence.

#### **3.2 Research Method**

This research study adopts a qualitative method and the underlying epistemology is interpretivism. According to Klein and Meyers (1999:69) interpretivist qualitative research assumes that knowledge of reality is gained through social constructions such as language, consciousness, shared meanings, documents, tools and artefacts. Interpretivist research does not predefine dependent or independent variables, but focuses on the complexity of human sense as the situation emerges. The aim of this research study is to understand the process of how an SMME determines the stage at which to commence e-commerce adoption. Furthermore a model is proposed to assist SMMEs in the Western Cape to choose between “adoption ladder” and “managed strategic adoption” when embarking on e-commerce adoption initiatives.

Klein and Meyers (1999:69) posit that qualitative researchers examine patterns of similarities and differences across research cases with the goal to organize specific details into a coherent picture or model. For example, Yin (2003:10) suggests case studies should aim to expand and generalise theories and, in a similar manner to experiments, case studies are generalizable to theoretical propositions. Neumann (2003:439-440) suggests that qualitative research enables researchers to create new concepts and theories by blending empirical evidence and abstract concepts. A Qualitative approach would be suitable to extract in-depth knowledge which could be analysed and used to propose a model to assist potential e-commerce adopting SMMEs in the Western Cape to select a suitable approach.

### **3.3 Research tactic**

Remenyi and Money (2004:70-79) define research tactics as the approach to evidence collection and analysis. An in-depth interviews tactic encourages participants to share as much information as possible on the research topic and may be focused with an interview schedule (Cooper & Schindler 2003:362). The in-depth-interviews are appropriate for this research study and will facilitate collection of detailed information regarding e-commerce adoption approaches by SMMEs. The use of semi-structured interviews will ensure that major issues such as the different e-commerce adoption approaches and critical success factors identified in the literature from previous studies are investigated whilst permitting interviews to raise additional issues pertinent to the e-commerce adoption stages.

### **3.4 Research Environment**

The research environment of this research study is confined to the Western Cape of South Africa. In South Africa 10% of the population reside in the Western Cape and account for 15% of the country's GDP (Wesgro 2005). In addition the Western Cape is the second most productive province in South



Africa after Gauteng province. The Western Cape's strong economy can be attributed to its unique balance of economic activities that range from agriculture, fishing and forestry in the primary sector to clothing and textiles in the secondary sector. Other sectors include automotive components, boat building, agri-business, vibrant tourism and an increasing array of future-orientated service industries (Wesgro 2005).

South Africans spend annually close to 19 billion Rand, on both local and international travel (Hartley & Worthington-Smith, 2004:182). South Africa has become one of the world's favourite tourist destinations recording high numbers of foreign travellers each year. In South Africa the Western Cape is the favourite destination for overseas visitors and is the province that records the highest average expenditure by local tourists (Wesgro, 2005).

### **3.4.1 Company selection**

In this research study participants will be selected from the tourism service industry operating in the Western Cape. The tourism industry is selected because it is one of the world's largest industries. Historically the tourism industry has been an early adopter of new technology and possesses features that make it an industry suited to e-commerce adoption (Wynne, Berthon, Pitt, Ewing & Napoli, 2001:421). Poon (1993)<sup>4</sup> in Castle, Lazarus, Mitha, Molla (2001:5) states that Information technology and Internet technology in the tourism industry will impact reservation and information management systems, how consumers look for information offerings and how tourism and hospitality companies communicate with their markets. In addition Poon (1998) in Castleman *et al.* (2001:5) suggests that Internet technologies improve efficiency, quality of services and lead to generation of new services. Wynne *et al.* (2001:422) states that the tourism market is increasingly being

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<sup>4</sup> Poon, A. (1993) *Tourism, Technology and Competitive Strategies*. New York; CABI Publishing.

organized on a global level, with heightened competition and is characterized by a network of interactions.

In the tourism industry hotels are used as subjects representing service providers to the tourism industry, and an SMME in Food, Beverage, and Tobacco Products market is used to represent product providers. This enables the research study to address the fulfilment challenges that arise when a physical product ordered on-line utilising e-commerce needs to be physically delivered to the customer.

The second industry from which a sample is obtained is the ICT sector. The Western Cape is a leader in terms of technology, business and infrastructure development. The primary nature of the IT business is dominated by design, software design and development. Many ICT companies are locating in the Western Cape due to the province's good skills base, innovativeness, and attractive lifestyle placing the province in a good position to serve as a national and international ICT hub. Furthermore the Western Cape is ideally situated as an ICT development hub as it has a well established and growing call centre industry, a competitive skills base from a number of tertiary institutions. In addition the media and communications industry, oil companies, and financial services contribute to the local economy. The good infrastructure includes a harbour, international airport, and communications network (Wesgro 2005). Additional impetus to select an ICT company for the research is obtained from the literature where both Poon and Swatman (1999:4) and Al-Qirim and Corbitt (2002:346) suggest IT businesses are more likely to adopt e-commerce. This makes the ICT sector an ideal sector to conduct this research study. A sample will be selected from this research environment.

### **3.5 Sampling technique**

Double sampling is a method by which researchers collect information from a sample and uses this information as the basis for selecting a sub-sample for further study (Cooper & Schindler 2003:82,181). In this research study a double sample technique is used. The first sample is a convenient sample of SMMEs registered with Chamber. The sub-sample is identified as those SMMEs from the sample that have websites providing facilities to transact online.

### **3.6 Research time dimensions**

Research time dimension is either cross-sectional or longitudinal. Cross-sectional studies are research studies where evidence collection represents a snapshot of one point in time (Cooper & Schindler 2003:149). This research study is cross-sectional as interviews with SMMEs will be conducted once.

### **3.7 Research ethics**

Saunders, Lewis and Thornhill (1997:109-112) define research ethics as the appropriateness of researcher behaviour in relation to those who become the subjects of research, or affected by it. The authors posit that ethics arise during the design stage, data collection phase, analysis and reporting of results. In undertaking this research study, the researcher aims to comply with ethical principles by not applying pressure on informants to grant access. Informants will not be deceived about the purpose of the research study and will grant informed concern. This is achieved by stating the aim of the research study on the research study invitation letter. An individual's right to privacy is respected and the researcher does not intrude on intended participant's privacy, but maintains participant's right to withdraw from the research study. Researcher maintains both organizational and individual confidentiality and anonymity and findings are represented honestly.

### **3.8 Quantitative Data analysis**

Univariate analysis is used to obtain a better understanding of the data by examining one variable at a time, generating images such as frequency and percentage tables, graphs, charts and statistical indexes (Mouton 1996:161). In this research study once the various stages of e-commerce adoption are identified the data is analysed using univariate analysis to generate a frequency table of the stages of e-commerce adoption within individual business sectors.

### **3.9 Qualitative Data analysis**

There are different approaches to gathering, analysing and interpreting qualitative data and the common thread between the techniques is that they are concerned primarily with textual analysis (Myers 1997). Henning, Van Rensburg and Smit (2004:10-2 -138) state that content analysis is one of the qualitative data analysis techniques. Content analysis involves studying data sets to form overview and coding segments of meaning. Then related codes are categorized into groups, and relationships are sought between categories to form patterns from the themes. The researcher is seeking answers to questions about the relationships between categories, what categories indicate together and about each other. Content analysis will be used to analyse the data collected through the use of in-depth interviews within the selected SMMEs.

### **3.10 Research relevance and rigour**

The research study should demonstrate relevance and rigour when the research investigates current organizational challenges and dilemmas as well as providing suggestions on how findings can be implemented in practice (Benbasat & Zmud, 1999:4-5). In this research study relevance and rigour is provided by suggesting how findings can be used and by sharing the results of the research study with the Chamber. A report summarising the findings will be provided to the SMMEs that participated in the research study.

### 3.11 Questions and target population

The key research question is how can South African SMMEs based in the Western Cape determine the stage at which to start e-commerce adoption.

The research question supports three investigative questions;

- At what stages of e-commerce adoption are SMMEs in the Western Cape of South Africa?
- Which approach have the SMMEs adopted for e-commerce adoption? A ladder adoption” or “managed strategic adoptin”?
- What are the critical success factors at each stage of e-commerce adoption?

To determine the stages of e-commerce adoption in these SMMEs, the model proposed by Chau and Turner (2003) model introduced in Chapter 2 is used. To understand which approach the SMMEs adopted for e-commerce adoption in-depth interviews are conducted. The in-depth interviews collect evidence from the subjects based on four main themes:

- Company background and strategic orientation
- E-commerce vision
- E-commerce adoption path, lessons learned and planned future use
- E-commerce and competitive advantage.

To examine the critical success factors at each stage of e-commerce adoption, participants are asked to rate the critical success factors identified by Chappel *et al.* (1999). The evidence collected and analysed from the interviewees is used to develop guidelines for SMMES to determine the stage at which to enter e-commerce adoption. In conclusion, the chapter discussed the research methods and tools that are to be used in this research study.

The chapter concluded with a brief account of questions to be answered in the research study. The Chapter 4 will elaborate on the data collection process and report on the results from the research study.

## **4 Chapter 4: Research Results**

### **4.1 Introduction and Background**

In this chapter, the evidence is analyzed in detail and interpreted in relation to the key research objective, which is to propose a model to assist SMMEs in the Western Cape to choose between “adoption ladder” and “managed strategic adoption” when embarking on e-commerce adoption. The results from the collected evidence will be mapped to the literature. The research problem identified for this research study is that although many studies report on e-commerce adoption, these do not provide clear guidelines for SMMEs to determine how to enter e-commerce adoption. The implication of this is that the SMMEs have no point of reference in selecting an appropriate adoption approach to suit their business requirements. In order to assist with investigating the research question, both quantitative and qualitative methods were used. Quantitative techniques were used to analyse data on the stages of e-commerce adoption in SMMEs whereas qualitative data techniques were used to analyse in-depth interviews.

### **4.2 Research question**

The research question is used as a basis to report on the data collection and results:

How can SMMEs determine the stage at which they may start e-commerce adoption?

#### **4.2.1 Investigative questions**

- At what stage of e-commerce adoption are SMMEs in the Western Cape of South Africa?

- Which approach have the SMMEs adopted for e-commerce a “ladder adoption” or “managed strategic adoption” ?
- What are the critical success factors at each stage of e-commerce adoption?

### **4.3 Data Collection**

Information and evidence was collected to satisfy the three investigative questions in order to support the research question. The first investigative question dealing with the stages of e-commerce adoption in SMMEs was based on Information from the Chamber’s website in 4.3.1. The second investigative question dealing with e-commerce adoption approaches adopted by SMMEs was based on Information and evidence from in-depth interviews discussed in 4.3.3. The third investigative question deals with the critical success factors at various stages of e-commerce adoption as a result of information from rating the critical success factors, discussed in 4.3.5. the data collection process and analysis.

#### **4.3.1 Chamber’s website data**

Dealing with the first investigative question, information from the Chamber was used. The Chamber has a record of 4 500 registered companies of which 90% are SMMEs and their records include e-mail address, Web address, number of employees, business description, contact telephone and area located for each business. The Chamber categorises companies into 38 market sectors to accommodate the various companies.

To determine the e-commerce adoption stage of the companies, a period of three months was required from April to June 2005. This entailed downloading the list of companies into a Microsoft Word document and those



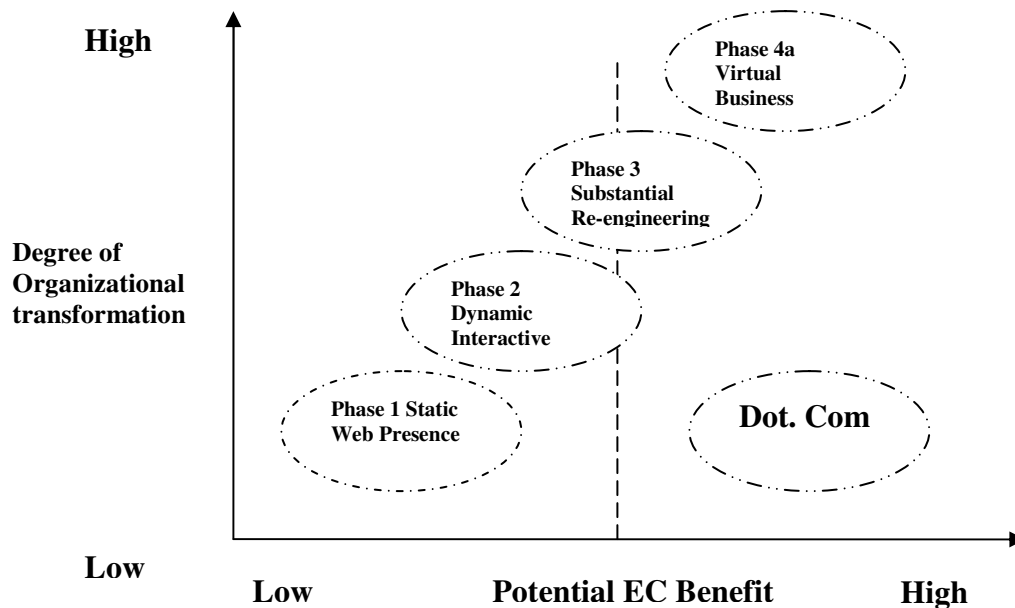
companies who were identified as having websites were copied to another file. There were approximately 1 000 companies with websites.

The next step was to access each website to determine the stage of e-commerce adoption. Not all websites could be viewed as some websites could not be accessed. Reasons for failure ranged from file server error, Unified Resource Locator not found, suspended website, gateway timeout or permission was required to access the website. The companies with more than 250 employees were deleted from the sample as well as websites with domains for sale and websites that loaded incorrect company profiles.

E-commerce is defined in this research study as digitally enabled commerce transactions mediated by the Internet and the Web, between organisations and individuals. Commercial transactions involve the exchange of value, for example, money across organisational or individual boundaries in return for products or services (Laudon & Traver, 2003). Many of the e-commerce adoption models identify e-commerce as a process ranging from e-mail to fully operational e-business websites. According to Chau and Turner (2003) static websites are classified as being on the e-commerce adoption path. The Chau and Turner (2003) model used in the analysing of the websites is illustrated again in Figure 4.1.

A total of 812 websites were reviewed whereby the stages of e-commerce adoption were labelled from phase 0 to phase 4 based on the Chau and Turner's (2003) model given in Figure 4.1. Phase 0 represents those SMMEs that have not adopted e-commerce and have no website without differentiating between those with or without e-mail. Phase 1 represents a brochure website where the company only has a static website.

## Four Phase Model of e-commerce utilisation among SMEs



**Figure 4.1:** E-commerce adoption model Chau and Turner (2003)

Phase 2 represents a stage where the company website provides customers with the facility to interact with the company through online query forms and quotations, as well as providing facilities to customers to buy online. Phase 3 represents a stage where the company has undergone business process reengineering and the website is linked to the company information systems. Phase 4 is a virtual or an e-enterprise, integrating the company's website to external partner information systems. Whilst phase 1 and phase 2 can easily be determined by reviewing the website, judging websites for phases 3 and 4 needed information from SMMEs that were already operating at phase 2.

From the first sample quantitative data was obtained by reviewing the websites phase 0 to Phase 4 and analysed using univariate analysis. On

completion of the analysis a list of possible SMMEs trading online was compiled and a subsequent sample drawn to be used for in-depth interviews. This constituted a sample of 38 businesses, spread across 14 different sectors and in the majority of cases only one business per sector. It would have been possible to select one business from each sector, but for richness in data analysis that allowed comparison, two hotels and one business in the Food and Beverage Tobacco products to represent the tourism market sector were selected. Two IT hardware retailers in the Information and Communication Technologies sector were selected to complete the sample.

In preparation for in-depth interviews, the Chamber was visited to solicit their support in gaining access to companies to conduct the research study. After consent was obtained, the companies were contacted by telephone followed by an e-mail of a research invitation letter addressed to the Managing Director. The interviews were set up, and in all cases, in-depth interviews were conducted and tape recorded for analysis later. The Managing Director was interviewed or whoever the Managing Director appointed to provide the best input regarding e-commerce adoption of the company. In all cases, Executive Officers in the research companies were interviewed. Each interview lasted approximately 1 hour.

#### **4.3.2 Chamber's website data analysis**

Analysing the 4 500 companies listed by the Chamber indicated that 18% of the companies had adopted e-commerce as they had websites ranging from static to dynamic interactive, that allowed customers to conclude purchase processes online.

Analysis of websites indicated that most websites, 88 were in the Information Communications and Technologies sector. This was followed by Business Service Consultants at 69 and the Construction sector with 47 websites. The number of websites per market sector is illustrated in Figure 4.2.

Sample Number of websites per Sector SMMEs Western Cape

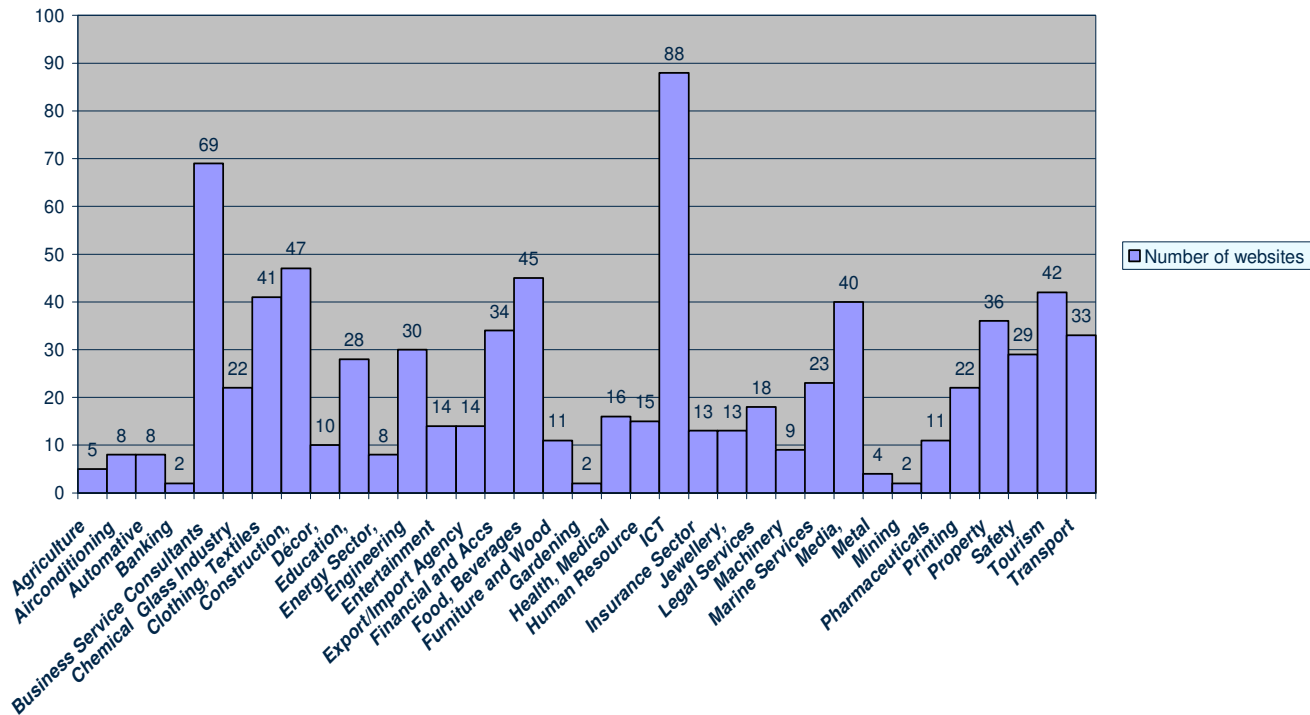
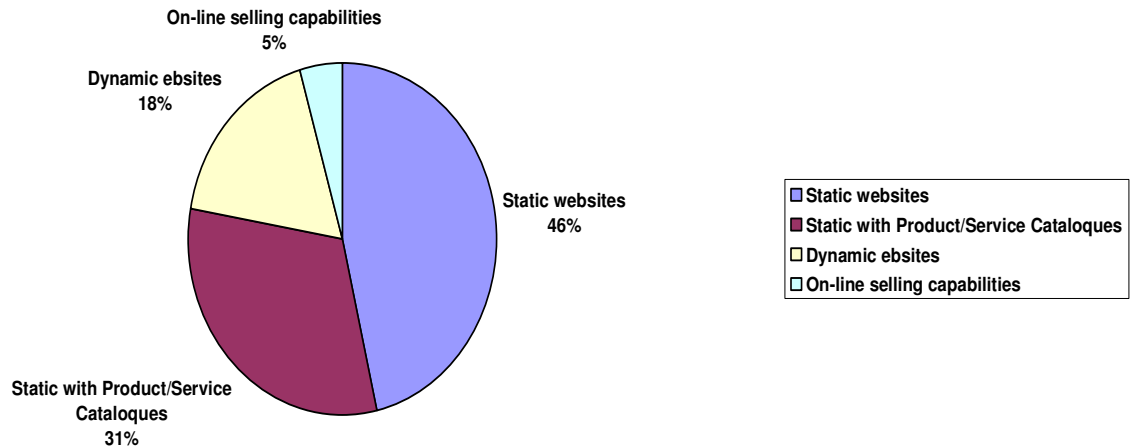


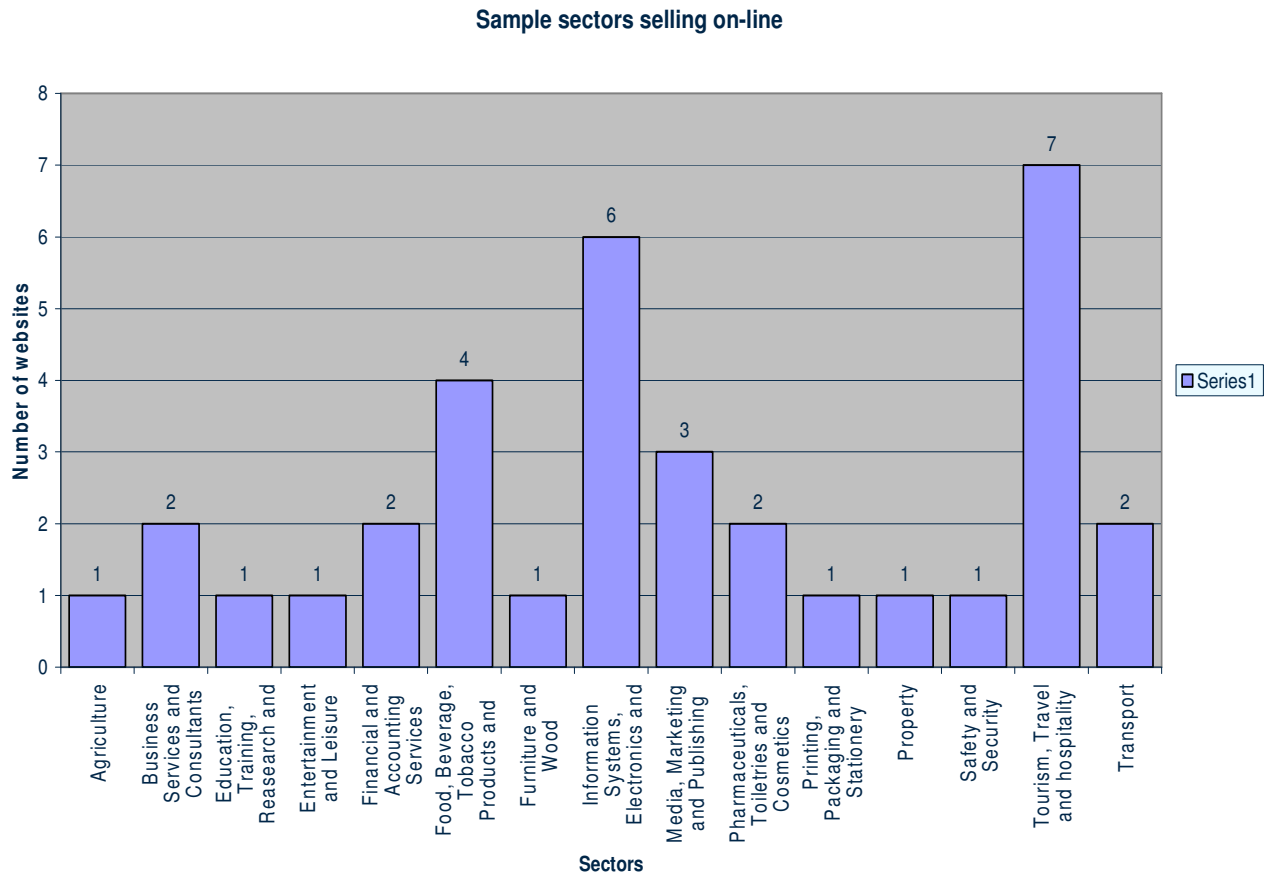
Figure 4.2: Number of website per market sector

Further analysis of the companies with websites indicated that whilst 46% of the SMMEs had static websites with no product/service catalogues, 31% had static websites with product and service catalogues. Of the remaining 23%, 18% had dynamic websites and 5% had interactive websites providing facilities to order and receive payments online. This is illustrated in Figure 4.3.



**Figure 4.3:** Sample levels of e-commerce adoption

A further analysis of SMMEs trading online was conducted. The results are shown in Figure 4.4. This shows that the sector with most on-line trading is Tourism, Travel and Hospitality. Second is Information Systems, Electronic and Communications Technologies and third is, Food Beverage Tobacco Products.



**Figure 4.4:** Company market sectors trading online from sample

### 4.3.3 In-depth Interviews results

Addressing the second investigative question that deals with the e-commerce adoption approach in the SMMEs in the Western Cape, evidence obtained from in-depth interviews is used. The companies in this research study have been given pseudonyms and some details of the companies have been masked to uphold confidentiality. From the literature several authors (Mehrtens *et al.*, 2001; Molla, 2002; Remeindschneider *et al.*, 2003), suggest that e-commerce adoption is influenced by organizational readiness, the perceived benefits and the external pressures that the companies are facing. The companies used in the research had already adopted e-commerce and

had followed an “adoption ladder route”. Reports are provided for all companies using as headings, organizational e-commerce readiness, external factors affecting e-commerce adoption and e-commerce benefits. However realized benefits and not perceived benefits are examined as the companies have all adopted e-commerce. In this research study companies are classified as being on the e-commerce adoption path when they have a static website (Chau & Turner 2003) as well as those that are trading online.

#### **4.3.3.1 Company one**

##### **Introduction**

Company one is a hotel that has about 200 employees and offers a diversified portfolio of services, with the aim of growing their market share.

##### **Organizational e-commerce readiness**

It appears that there is good e-commerce knowledge amongst non-IT professionals in the hotel. The respondent is a marketing executive and demonstrates a clear knowledge of how the hotel is using e-commerce to expand the market share. The respondent adds,

“As a hotel we understand the importance of the development of Information Technology in the future”.

Furthermore the company appears to have adequate resources to adopt e-commerce. The company has outsourced their website development to a company which the respondent feels is knowledgeable and able to maintain the website.

The respondent revealed that one of the factors critical for the hotel’s e-commerce operation was to ensure that the ICT infrastructure is able to handle high user volumes. For example if a special is offered the people must be able to do the booking without the systems crashing.

### **Realized e-commerce benefits**

The participant stated that firstly, it is cheaper for the hotel when customers book via the website rather than the Global Distribution Service (GDS) system where the hotel has to pay for transaction fees in dollars. Secondly, e-commerce has enabled the hotel to build an up-to-date customer database, as well as to respond quickly to online customer needs. Thirdly, booking online provides convenience for the customer. Finally the website extends the hotel market reach to overseas visitors providing customers with a view of what the hotel offers as well as brochures that customers may download.

The respondent said, that any new entrant in the market, must assess how it can possibly use IT and e-commerce technology to assist in branding the product, establishing the product and making a profit from the product.

The participant indicated that there are two key challenges to e-commerce adoption. The first is dynamic changes; with e-commerce it is not only what we learned but it is also what we are learning, because things are changing everyday. Furthermore, the rate of change when it comes to Information Technology is much quicker than it has been in the past. The second challenge is: "Understanding that Information Technology is with us whether we like it or not."

### **External factors affecting e-commerce adoption**

In terms of external pressures, the hotel is pressured by customers, who want to find the information online and book for accommodation online. The participant stated,

"It's only the appreciation that the customers desire more information on the website, if they get the information they want and the information is right they will do the booking online. What have happened are the more and more



people wanted to use the website to do their booking and they never did in the past.”

#### **4.3.3.2 Company two**

##### **Introduction**

Company two is a hotel that is focused on growing its market share and it has around 100 employees. It is changing its customer profile from a timeshare holiday destination to becoming a provider of accommodation for long stay corporate clients.

##### **Organizational e-commerce readiness**

The respondent revealed that the company has adequate resources to adopt e-commerce as the website development is outsourced, the respondent says,

“We have a company that does everything pretty much for us, to update the changes that we require”.

##### **Realized e-commerce benefits**

The hotel is realizing benefits from e-commerce adoption. E-commerce enables the hotel to target specific customer segments individually. This allows the hotel to serve each individual segment with improved service with regards to addressing the customer requirements. The website provides the chance to show-case the hotel offerings to a wider customer base. E-commerce enables the hotel to check what their competitors are offering, so as to be able to compare themselves against the competitors.

## **External factors affecting e-commerce adoption**

Company two is facing external pressures from the travel agents. The respondent said,

“Times have changed and continue changing very fast. Travel agents no longer phone the hotel to check availability of rooms. They go on the Internet to check availability and if the price right, book over the Internet”.

### **4.3.3.3 Company three**

#### **Introduction**

Company three is a computer hardware and software supplier with close to 30 employees. The company is divided into two related companies with one focusing on individuals and the other company focusing on hardware dealers. The company selling to individuals has 4,500 customers country wide whilst the one focusing on dealers has 1,400 customers. The company focusing on individuals conducts 80% of its sales online. The sales are country wide and in South Africa’s neighbouring countries, with most sales in the Johannesburg area. Of the 20% done the Western Cape, 50% are online.

#### **E-commerce Organizational readiness**

On the question of organizational readiness the company is in IT and by default staff members are IT professionals so e-commerce knowledge amongst staff is not a challenge. The respondent added,

“We are in IT, we have to be current in terms of technology, there is no point in us being backwards, but more important, we have a staff compliment that is highly trained, that keeps us on the forefront of technology concerning what is happening and we have set aside money for training.” The respondent goes on to say, “We are a Microsoft partner and we endorse and encourage the use of technology”.

The company appears to have adequate resources to adopt e-commerce and there is enough skill in-house to develop and maintain the website, as revealed in the previous quote, the staff members have various IT qualifications. The respondent revealed that the company communicates daily with the customers through e-mail. On average the company serving individual customers receives 12, 000 e-mails per week whilst the one serving dealers receives 3000. The respondent revealed that the company has resources to support fulfilment. The respondent says,

“We have access to stock, to meet customer expectations and ensure delivery within 48hours once the credit card has been processed. We have infrastructure to support e-commerce in terms of a transport network to deliver products in the Cape and contractual arrangements with couriers locally and internationally.”

### **Realized e-commerce benefits**

Company three is realizing benefits that include being able to attract new customers and reduce costs. The respondent says,

“E-commerce has been good for us in terms of reducing costs, acquiring new customers and enhancing our customer profile as we attract customers who traditionally would not have bought from us, purely because they would not have been aware of us.” The respondent goes on to say, “The physical exercise of trying to track those numerous customers in those regions would have been cost prohibitive and it would just be a massive time consuming exercise”.

The company is acquiring customers through referrals, the respondent says,

“e-commerce transactions are quite exciting things in terms of where we are now because word of mouth spreads very quickly. We have acquired a number of customers from positive feedback which is obviously the best way of getting a customer “.

E-commerce enables the company to provide customers with convenience by delivering products where ever they are needed in the country. Furthermore the company is able to deliver products to customers that do not necessarily have access in terms of transport to go to the major centres to procure the stock.

Company three has to address challenges such as e-commerce security, as a company selling online must guarantee that the transaction is secure. The company three website is secured with a Thawte digital certificate. Setting up an e-commerce website is a challenge as the website not only has to be functional but must also deal with disaster recovery. If the website goes down, one must ensure it gets back online quickly. Customer information presents a challenge, in terms of where it is held, how it shared and making it available only to authorised personnel. Company three feels the company has an ethical responsibility to ensure that the information is not shared and ensuring that an information breach does not arise. For example the customer information is isolated from their host server.

For a new entrant, the respondent states,

“It depends on the type of business, but today for a company starting out it is important to have a website giving information about the company, address and physical details and product range. Secondly the company must ensure that the website is optimized. Thirdly the company has to consider the suitability of online sales for their product. Finally, the company must allow a certain amount of time for implementation, it is important not to force the time to go live, but rather ensure the system actually works, for example have it on

a back-end server or on temporary domain name and actually have a test of the problem”.

### **External factors affecting e-commerce adoption**

In terms of external pressures for e-commerce adoption, the respondent states,

“The computer industry sector is very competitive; there are a number of players in the Western Cape, a number of players in Johannesburg, a couple in Port Elizabeth, East London, Durban as well as in Bloemfontein”. Despite the number of players, and the fact that the Case C is based in Cape Town, e-commerce enables the company to do most sales in Johannesburg, and sells products on a weekly basis to Port Elizabeth, East London, Durban, Bloemfontein and Umtata.

Pressure for e-commerce adoption also comes from the customers who want to transact online. The participant added,

“We are attracting customers that we would not necessarily attract who transact because they like the idea of transacting online, people who like to transact wherever and whenever they want”.

#### **4.3.3.4 Company four**

##### **Introduction**

Company four is operating in the food, beverage, and tobacco products market sector. The company is focused on growth and innovative in its approach and offers services in a niche area, and the respondent feels they offer a unique service.

## **Organizational e-commerce readiness**

It appears that there is good e-commerce knowledge amongst non-IT professionals in the company. The respondent is one of the Managing Directors, and has a background in electronics and co-owns another company that provides hosting service and sets up websites. This company currently has about 100 clients, and charges R109.00 per month for a basic website. The respondent reveals,

“I have always been interested in the Internet and can distinctly remember when the Internet was literally 50 websites”.

Company four appears to have adequate resources to adopt e-commerce both in terms of the availability of IT resources and facilities for processing transactions. The respondent revealed that the company has a portal for handling credit transaction and a merchant account for processing manual transactions. The company has business resources to support e-commerce fulfilment. The respondent says,

“When we launched this new place I could then put on the website the services we offer because having our own venue means that we were in control, therefore we can plan “.

## **Realized e-commerce benefits**

Company four is realizing benefits from e-commerce. The respondent revealed that,

“Almost 95% of the business we do right now is generated by the Internet either through the website or e-mail”. The respondent indicated that e-commerce gives the company “a window to expose the company 24-hours, 7 days a week”. Furthermore the Internet improves communication within the company as well as with external partners.

E-commerce has enabled the company to build an up-to-date customer database. A key challenge to e-commerce according to the respondent, is Telkom<sup>5</sup> charges and costs. From an SMMEs perspective costs are very important and with e-commerce the more traffic one gets the more it will cost. The respondent added,

“For bandwidth we are paying I’d say 3 to 4 times more than what people are paying in Europe on average excluding exchange rate”.

Another challenge to e-commerce is getting people to advertise on the website which is not easy. A further challenge relates to credit card fraud. The respondent reveals that the products that the company sells online are “safe products” that do not have a high portability factor. Fulfilment is also a challenging aspect as the postage costs, especially for overseas customers are quite substantial. A challenge for SMMEs is also finding a Web hosting company that will not overcharge for the service, the respondent adds, “ it is a challenge to find somebody who didn’t rip us off”.

### **External factors of e-commerce adoption**

The motivation for e-commerce adoption, according to the respondent, comes from the company’s aspiration for being innovative as well as pressure from external international partners who expect the company to be on e-commerce.

#### **4.3.3.5 Company five**

##### **Introduction**

Company five is in the Communications Technology Sector. It is mainly a printer, computer products and office supplies re-seller. The company is focused on growth. The managing director adds,

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<sup>5</sup> Telkom is the telecommunication provider for South Africa.

“There is always growth because we are forced to grow because of the decline in the rand/dollar exchange rate our margins are very very squeezed we have to out grow the decline of the rand /dollar”.

The respondent adds, “In the industry that we operate the product is not differentiated, anybody can sell what we sell content is exactly the same and the packaging, branding is exactly the same, the brand is Hewlett Packard. The main variable that we can work with is the price and the main way that we deal with the product is we pitch ourselves very low price and also the level of service is very high we add a lot of service add value to our clients.”

The company is not yet selling online but is busy with the implementation of an e-commerce system.

### **Organizational e-commerce readiness**

The company is in the Information Technology Sector so organizational resources for e-commerce are not much of a challenge as the respondent added,

“We have our own Internet Service Provider, a company called CISCOM which is resident in this building”.

The main challenge as far as organizational readiness is concerned is having sufficient resources to allocate for e-commerce in terms of finance and time.

### **Realized e-commerce benefits**

The company is currently busy with work on the website to provide facilities to order online. However the company has had benefits from the use of the



static website and e-mail. The static website enabled the company to establish a Web presence whilst e-mail has improved communication for the company.

The challenge to e-commerce adoption was identified as the telkom tariffs where the respondent said,

“Telkom tariffs are beyond a challenge because we are paying up to 6 times more than people in other countries. “

### **External factors of e-commerce adoption**

The company was faced with external challenges to adopt e-commerce. The respondent added,

“The website was an add-on basically due to external pressure to have a website”.

#### **4.3.4 Comparative analysis of the five companies data**

The companies used in this research study offer examples of how SMMEs in the Western Cape are adopting e-commerce. In Chapter 3 Klein and Meyers (1999:69) suggest that qualitative researchers examine patterns of similarities and differences across research cases with the goal of organizing specific details into a coherent picture or model. In examining the companies in this research study, similarities and differences both between the SMMEs, and the literature will be discussed. Results from the in-depth interviews indicate that SMMEs in the Western Cape are realizing benefits from e-commerce and in some companies, e-commerce plays a strategic role, depending on the business orientation for growth. The results of the analysis of each company is summarised in Table 4.1. Thereafter each factor will be compared to the literature.

**Table 4-1: Company comparison**

Products/Services	Company one Accommodation	Company two Accommodation	Company three Soft ware and hard Ware	Company four Catering	Company five Computer Hardware, Printers and Office supplies
Company Size	200	100	23	5	24
Growth orientation	Growth	Growth	Growth	Growth	Growth
Adoption Approach	"adoption ladder"	"adoption ladder"	"adoption ladder"	"adoption ladder"	"adoption ladder"
E-commerce role	The company views e-commerce playing a vital in their future " We see the hotel going the same way as the airline industry"	e-commerce is not important in the current strategic orientation. "e-mail is too impersonal"	E-commerce plays a strategic role in the company. "if you take away Internet from our business wouldn't be in business"	E-commerce plays a strategic role "95% our sales are generated.... through the Internet."	The company views e-commerce as playing a minimal role in their future.
Target Market	A wider customer base "60% of our occupancies comes from overseas customers"	local Corporate Clients	A wider customer base over 80 % of the company sales are outside the Western Cape	A wider customer base	local Corporate Clients
Benefits	cost savings as it is cheaper to book online than on a GDS systems used in the hotel industry for online bookings.  It enables the hotel to build an up-to-date client database  extends the hotel market reach, especially to overseas customers	enables the hotel to target specific <b>specific customer</b> segments individually  express the hotel and facilities to a wide customer audience  It enables the hotel to compare their prices with their competitors' offerings	attract new customers and reduce costs  acquiring customers through referrals and provides customers convenience deliver products to customers that do not necessarily have access in terms of transport to go to the major centres	Attract new customers  Expose ourselves 24 hours 7 times a week  Good image for the company	Improved communication  establish a web-presence
Challenges	The rate of change with e-commerce as when it comes to IT change is much quicker than it has ever been in the past	keeping the website up to date	providing on-line security ensuring information breach does not occur providing 24X7 availability	Telkom tariffs Finding an ISP that charges a fair price and online security	Telkom tariffs Connectivity levels in South africa
Lessons Learned	There is no need to reinvent the wheel one needs to look at successful adopters's in one industry and learn from them.	Setting up e-commerce takes a lot of time and once it is set up updating the site also requires a lot of time.	allow a certain amount time for implementation and ensure the system actually works before going live	the longer you are on the Internet, the better you see For example how best to get your website optimized	allocating sufficient resources for e-commerce adoption

#### 4.3.4.1 Product and services

In the literature review (Chapter 2) Peterson *et al.* (1997:335-336) indicate that products purchased online are those that are expensive and infrequently purchased. This was found not to be the case for the products sold by the SMME in the Food, Beverage, and Tobacco Products market sector.

Poon and Swatman (1999:14) state that SME with a higher percentage of competitors online and operating in the IT market sector influences e-commerce adoption. This view is also held by Al-Qirim and Corbitt (2002:346). The arguments are supported in the research study as analysis of websites indicate that the highest prevalence of websites are in the Information Communication and Technology sector. Additional support for the argument is provided by one of the respondents from an ICT SMME who asserted a need to keep up with technological developments.

Reimenschneider *et al.* (2003:281) referring to Davis' (1989:320) Technology Acceptance Model (TAM) suggest that small business executives adopt e-commerce due to the anticipated benefits. In addition, whilst expected difficulties in adopting e-commerce are distinct, but do not influence the eventual adoption intention. In this research study there is agreement with the literature as difficulties in implementing e-commerce did not seem to deter e-commerce adoption. In the hotels e-commerce skills were not available in-house and the companies outsourced to companies which the informants believed were competent.

A manager's innovative influence highlighted in Thong (1999:94) is evident in the SMME in the Food, Beverage, and Tobacco Products market sector, where the company's participation in e-commerce as attributed to the manager's personal interest in the Internet and the desire to use e-commerce as a means to innovate.

#### **4.3.4.2 Company size**

The companies in this research study are SMME with the number of their employees ranging between 5 and 200. Company size in this research study indicates that e-commerce has potential benefits to all SMMEs regardless of size, as all the SMMEs in the research highlighted the benefits that they were realizing from e-commerce, as illustrated in Table 4.1.

#### **4.3.4.3 Growth orientation**

Chappell *et al.* (1999:5) suggest that SMEs may either be “growth oriented” or “quality of life” companies. Growth oriented SME aim to grow and create value. In the case of “quality of life”, the companies’ aim is to generate income for the owners. All the SMMEs in this research study were found to be growth oriented.

#### **4.3.4.4 E-commerce adoption approach**

From the literature and purposely designed into the research methodology and design of this research study the two approaches to e-commerce adoption, the “adoption ladder” and “strategic adoption models” were examined. All the SMMEs in this research study followed an “adoption ladder” approach to e-commerce adoption. This implies that the Chau and Turner (2003) model that suggests that SMEs do not necessarily undertake an evolutionary path to e-commerce is not applicable in these five SMMEs.

#### **4.3.4.5 E-commerce role**

Several authors in the literature highlighted the evolvement of e-commerce adoption and argue that e-commerce evolves from initial stages of cutting costs to where e-commerce is used to access new customers (Straub & Klein, 2001:54 ; Bytheway & Goussard 2001:14). In this research study all the SMMEs are using e-commerce to access new

markets. There was no evidence that any of the SMMEs are using e-commerce to support high levels of customisation. Da Silveira (2003:201) suggests e-commerce provides internationalisation by enabling smaller companies to reach customers worldwide. In the two hotels, one ICT SMME and the SMME in the Food, Beverage, and Tobacco Products market sector were all using e-commerce to reach customers on a world-wide scale.

According to Chau and Turner (2003:4) e-commerce was central only in SMEs that were in Phase 3 and Phase 4. SMEs in phase 3 have gone through substantial re-engineering with the website linked to organizational information systems. SMEs in phase 4 are virtual e-enterprises that have their websites linked to partner's organizational systems. In this research study e-commerce was central to one ICT SMME and it was expected to be central in the future of one hotel. The SMME in the Food, Beverage, and Tobacco Products market sector claims that 95% of its business is generated through the Internet. This indicates disagreement with the literature as these SMMEs are only in phase 2 where products are sold online but e-commerce plays a central role.

#### **4.3.4.6 Target Market**

Bytheway and Goussard (2001:2) suggest that organizations should determine whether they are aiming at domestic or International markets. In this research study e-commerce did not play a central role where the companies were targeting local corporate clients, which was the situation in one hotel and in one ICT company. E-commerce was viewed as playing a central role where companies were targeting a broader customer base that is customers not necessarily residing in the Western Cape. This was observed in one hotel, one ICT SMME and the SMME in the Food, Beverage, and Tobacco Products market sector.

#### **4.3.4.7 Benefits**

Porter (2001: 75) gives the common uses of the Internet and in this research study the use of the Internet in marketing and sales was examined. Four companies are offering on-line sales whilst the fifth company is busy with website development to provide on-line sales and purchase facility. Four companies provide online sales with real-time access to product catalogues, pricing, online submission of quotes and order entry. In one hotel, one ICT SMME and the SMME in the Food, Beverage, and Tobacco Products market sector, there is evidence of customer-tailored marketing through customer profiling. There is also evidence of real-time customer feedback and “opt-in” or “opt-out” marketing and promotion response tracking.

Tagliavani *et al.* (2001) and Lumpkin and Dess (2004:161) state that SME managers are not clear how e-commerce adds value to their businesses. The companies in this research study have adopted e-commerce and serve as examples for SMMEs embracing the benefits that may be realized from e-commerce adoption. Furthermore the companies in the research study have achieved benefits as illustrated in Table 4.1.

Saban (2001:26-30) highlights the importance of strategy formulation in meeting expected results. In this research study the strategy formulation process in the research subjects was not examined. However the importance of strategy formulation is supported by the fact that there are different approaches to e-commerce adoption. Two approaches are available, a “ladder adoption” and “managed strategic adoption” and a strategy that sets out the current business situation and the desired situation forms a basis of determining how e-commerce can contribute towards the desired strategy.

Jeffcoate *et al.* (2002:127) argue that SMEs do not formally define nor understand their competitive strategy. All the SMMEs in this research study could clearly articulate their company’s strategy and the companies were engaged in a differentiation strategy. This

view is supported by Miller and Toulouse (1986:19) who suggested that SMEs tend to favour a differentiation strategy due to their inability to utilize economies of scale.

#### **4.3.4.8 Challenges**

In Sub-Saharan Africa further development of e-commerce will require business and government attention to electronic security (Economist Intelligence Unit ,2005a:18). In this research study electronic security has been identified as a challenge by the one ICT SMME and the SMME in the Food, Beverage, and Tobacco Products market sector. Other challenges that have been identified include telecommunication tariffs charged by Telkom being expensive, e-commerce rate of change and protecting customer information to ensure that it does not get breached.

#### **4.3.5 Information from Critical Success factors rating**

In addressing the third investigative question dealing with the critical success factors, those factors identified by Chappell et al (1999:11-12) were mapped to the Chau and Turner (2003) stages of e-commerce adoption. The research subjects are generally on phase 2 where they are offering on-line sales, making the critical success factors beyond this stage are perceptions. The critical success factors were ranked on a scale ranging from highly disagree as 1 to highly agree at 6. Whilst there was a general agreement on the factors being critical, new factors were also identified. A detailed discussion of each of these factors follows.

##### **4.3.5.1 Phase 1 - Static Website**

- Commitment was defined as the motivation to use the Internet to innovate. There was strong agreement that it was critical for success. This was demonstrated in all the companies in this research study because they had allocated sufficient resources to facilitate the adoption of e-commerce. The companies had sufficient

IT resources as well as resources that support fulfilment. In two of the SMMEs in the research study e-commerce was viewed to be central to business operations and in one it was expected to play a central role in the future.

- Content, was defined as presenting the service in a compelling manner. There was strong agreement that it was critical factor for success. The SMMEs in this research study have products and services that are offered and clearly presented on the websites.
- Price sensitivity was defined as offering competitive prices. There was a moderate agreement that it was critical for success. The SMMEs' ratings ranged from agree to moderately agree. The reason for this was said to be that companies need not to offer product and services at lower cost online. The price has to be competitive in terms of the market price.
- Brand image was defined as the ability to build a brand name. There were two opposing views. One hotel and one ICT SMME felt that the website was not an ideal platform to build a brand name. Whilst the other hotel, the other ICT SMME and the SMME in the Food, Beverage, and Tobacco Products market sector highly agreed that brand image was critical for success.
- Website optimization for search engines to improve the visibility was a new factor that was identified as critical for success in this research study. One respondent from an ICT SMME adds,  
"Our website is optimized to all search engines such as Ananzi and most types of search engines. If you do a key word search on our products they come up between first and fourth." And the other one from a hotel says,  
  
"When people look for services in our sector our desire is to be on page one and number one on the list".



#### 4.3.5.2 Phase 2 - Dynamic interactive

- Convenience was defined as website usability for the purpose for which it was designed. It was highly agreed that this factor was critical for success. All the SMMEs viewed usability to include ease of navigation, speed at which it can be assessed and a unique selling point that the company offers.
- Interaction was defined as building relationships with individual customers by providing timely pre and post-sales support. Different views were expressed regarding building relationships online. One hotel and one ICT SMME disagree with the use of online interaction to build relationships whilst the other three SMMEs highly agreed.
- Community was defined as relation building with groups by providing technology for members. A view similar to the one expressed for interaction was expressed where one hotel and one ICT SMME disagreed and the others agreed.
- Meeting customers' expectations in terms of product quality and speed was identified as a factor that is critical for the success of online sales, by the ICT SMME and the SMME in the Food, Beverage, and Tobacco Products market sector.
- Security, to ensure that the website is secure through guarantees as Thawte digital certificates was identified as a factor critical for success in this research study by the ICT SMME.
- Suitability of the product to be sold online was identified as critical for success in the research study by SMME in the Food, Beverage, and Tobacco Products market sector and the ICT SMME.

#### **4.3.5.3 Phase 3 - Substantial re-engineering**

- Control was defined as having processes that can be managed by the company. There was strong agreement by all the SMMEs in this research study that this was critical for success.
- Process improvement was defined as the extent to which the company can change and automate operations. There was strong agreement that this was critical for success by all the SMMEs in the research study.

#### **4.3.5.4 Phase 4 - Virtual business**

- Integration was defined as providing links between the company and external partners. All the SMMEs in the research study highly agreed that this was critical for success at this stage.
- Partnerships were defined as the ability to forge partnerships in order to extend service capabilities through partnering with third parties. All the SMMEs in the research study highly agreed that this was a critical factor for success at this stage.

This discussion on the critical success factors at each stage of e-commerce adoption concludes the data analysis.

#### 4.4 Summary

In summary in this chapter, the researcher reported on the data collection process and used the evidence to address investigative questions.

The first investigative question was addressed by reviewing websites of companies registered on the Chamber.

The second investigative question was addressed with data collected from in-depth interviews. The data obtained from the companies was reported on and analysed.

The third investigative question was addressed by requiring the research participants to rate their agreement or disagreement to the critical success factors identified by Chappell *et al.* (1999:11-12).

Having addressed the investigative questions the researcher needs to examine the research question: How do SMMEs determine the stage to start e-commerce adoption? Evidence from the investigative questions will be used to provide guidelines on how an SMME can enter e-commerce adoption in Chapter 5.

Chapter 5 presents the research findings, and draws analogies to propose a model to assist SMMEs to choose between “ladder adoption” and “strategic managed adoption” approaches.

## **5 Chapter 5: Research Findings**

### **5.1 Introduction and Background**

In this chapter, the research study findings are concluded and recommendations made. Reviewing the literature reveals sufficient evidence that although e-commerce adoption offers potential for business improvement for SMMEs, there is a lack of consensus regarding the e-commerce adoption approaches. The two acceptable approaches, “adoption ladder” and “managed strategic adoption” were both considered initially as possible approaches, however, due to criticism found in the literature towards the “adoption ladder” approach, the Chau and Turner (2003) one of the “managed strategic adoption” model was selected for this research study. Another contributing reason for the selection of the Chau and Turner (2003) model was that their study examined the uptake and use of e-commerce amongst SMEs in Australia. Although this research study is not a replication of the Australian study, the same methodology and some aspects of their questionnaire are used for this research study. As the Australian study was extensive using many case studies, it was decided to use a qualitative interpretivist research approach making use of in-depth interviews. This approach was considered suitable as it would facilitate collection of detailed information regarding e-commerce adoption approaches. The use of semi-structured interviews would ensure that major issues such as the different e-commerce adoption approaches and critical success factors identified in the literature from previous studies are covered, whilst permitting interviews to raise additional issues pertinent to e-commerce adoption stages.

### **5.2 Research Findings**

The first investigative question determines the stages of e-commerce adoption in SMMEs in the Western Cape. To find suitable SMME websites, companies registered with the Chamber were used as detailed the section 4.4. Inspecting the 4,500 companies registered with the Chamber revealed that 18% of the SMMEs had adopted

e-commerce. They owned websites ranging from static to dynamic interactive ones that allow customers to conclude purchases online. Further analysis of these businesses having websites, indicated that 46% of the SMMEs had static websites with no product or service catalogues, whereas 31% had static websites that did offer product and service catalogues. The remaining 18% owned dynamic websites allowing customers to send online queries or placing online orders and of which 5% had interactive websites offering facilities to receive payment online.

The findings from the research study are in line with findings from Cloete (2002), Cloete, Courtney and Fintz (2002) and Moodley (2003) where it was found that e-commerce adoption in South African SMMEs is limited. Out of a total of 4,500 SMMEs only 18% have adopted e-commerce with only 5% of these providing advanced facilities to conclude transactions online.

The second investigative question deals with the e-commerce adoption approach in SMMEs. This is to determine whether SMMEs had adopted an “adoption ladder” or “managed strategic adoption” as well as gaining insight into the e-commerce adoption process in SMMEs. Results from the in-depth interviews with 5 companies indicate that SMMEs in the Western Cape are realizing benefits from e-commerce, and in some cases, e-commerce is playing a strategic role, depending on the manager’s strategic orientation for growth.

It was found that all SMMEs that participated in the study followed an “adoption ladder” approach to adopt e-commerce. In most cases, the reason for this route was that at the time when the SMMEs adopted e-commerce, the technology was not sufficiently mature to enable secure e-commerce transactions, and it was more difficult to operate and trade in the electronic world. These results suggest that the Chau and Turner (2003) model is not applicable as it suggests that SMEs do not necessarily undertake an evolutionary path to e-commerce. All five SMMEs adopted e-mail and moved on to adopt a static website and four of them are providing facilities to order and pay online

whilst the fifth SMME is currently busy re-constructing the website to provide facilities to pay online.

At first the researcher was concerned that these findings may be problematic in that all five SMMEs had followed an “adoption ladder” route. Instead of going back to select more businesses from this group, it was decided to explore the literature again to ascertain what type of business would most probably have used the “managed strategic” approach.

According to Warden and Remenyi (2005), 1time Airline operating in the LCA (Low Cost Airline) industry followed a “Strategic managed adoption” approach. As far as could be determined, 1time Airline exhibited the necessary conditions to adopt this approach and 1time Airline may be classified as a large business because its asset value exceeds 23 million Rand and had more than 200 employees by 2005.

Considering the results from the case study of the airline industry it is a fair assumption to make, that larger businesses would most probably adopt the second approach, i.e. “managed strategic adoption” compared to SMMEs following the first approach which is an “adoption ladder” route. Potential e-commerce adopters need to assess their organizational readiness to adopt e-commerce, external pressures for e-commerce adoption and their perceived benefits, and whether they aspire to continuous improvement or innovation. If an SMME aspires to continuous improvement it may follow an “adoption ladder” approach. Furthermore, if an SMME aspires to be innovative and is faced with severe external pressure, it should rather follow a “strategic management adoption” route. However following this route requires internal user involvement, comfort level with new technologies, leadership and an accommodating and mature organisational structure.

This argument that e-commerce is playing an important role in SMMEs is in contrast to Moodley, Morris and Velia’s (2003) research studying exporting of garments in South

Africa. It was noted that there was no evidence that e-commerce supports inter-firm commercial transactions by reducing costs. In this research study the inter-firm transactions were not examined but the business to consumer transactions were. It was found that e-commerce enabled the SMMEs to reduce costs, attract new customers and improve customer service.

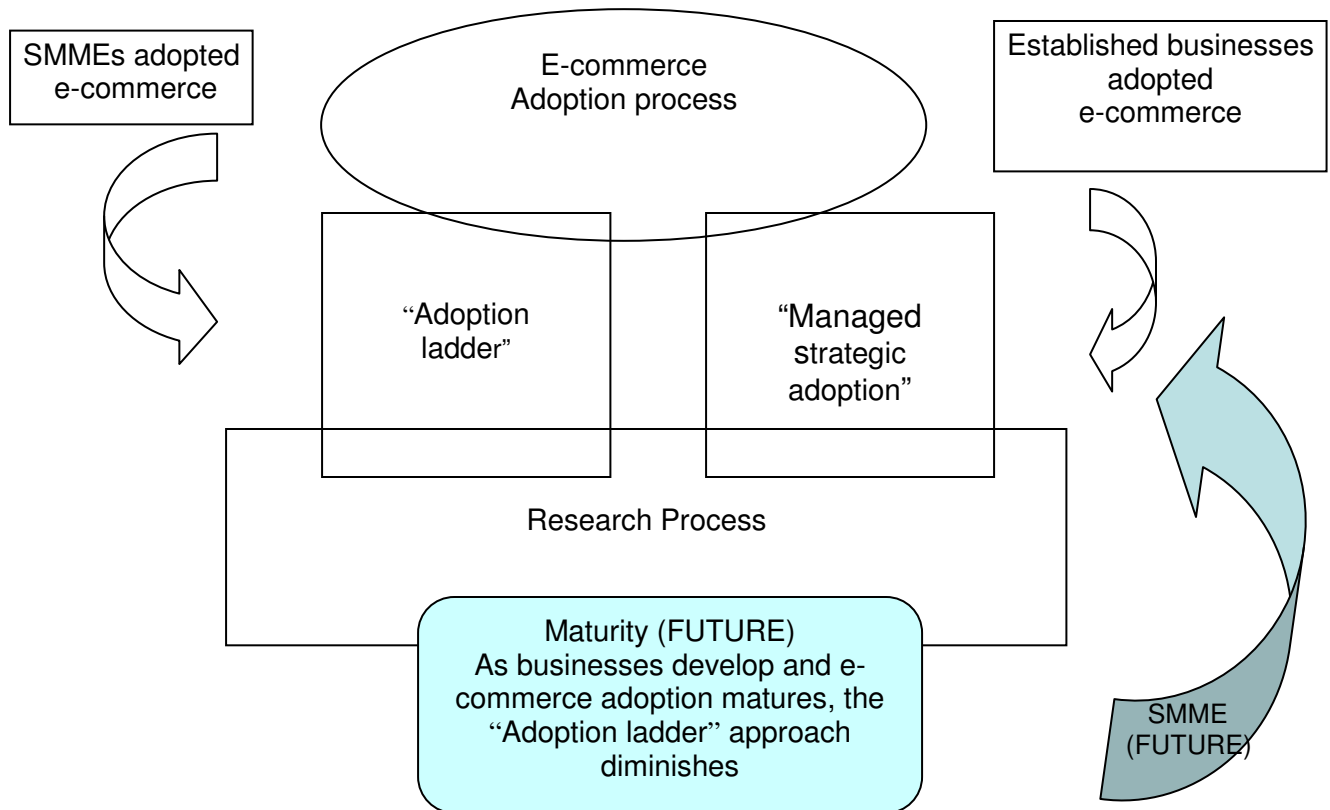
The third investigative question deals with critical success factors at each stage of e-commerce adoption. The critical success factors identified in Chappell *et al.* (1999:11-12) were rated on a scale ranging from “highly disagree” to “highly agree”. There was general agreement on the identification of critical success factors. Website optimization was identified in this research study as critical in phase 1. In phase 2 new factors that were identified were meeting customer expectations in terms of product quality and speed, ensuring the website is secure and suitability of the product to sell online.

Three main findings are revealed from this research study:

- An “adoption ladder”, approach was used by the five SMMEs.
- Small and start-up SMMEs follow the “adoption ladder” approach and larger and more established businesses follow the “managed strategic adoption” approach.
- This research study revealed that the adoption approach is not in agreement with the Chau and Turner (2003) model as the five SMMEs have undertaken an evolutionary path to e-commerce adoption as suggested in the “adoption ladder”, rather than embarking on e-commerce at any one phase as proposed by the “strategic managed approach”. Despite criticism levelled at the “adoption ladder” it is still applicable to some SMMEs in the Western Cape of South Africa.

### 5.3 Analogies drawn from research findings

Figure 5.1 is a proposed model showing that SMMEs initially follow an “adoption ladder” route, and larger established companies follow a “managed strategic adoption” approach.



**Figure 5.1:** Model to assist SMME to adopt e-commerce

### 5.4 Conclusion

E-commerce adoption of the SMMEs is at an early stage and awareness campaigns would benefit those SMMEs that have not yet adopted e-commerce. By using the proposed model to explain and walk-through potential e-commerce adopters, the SMMEs would be able to decide what would be the best route for them to follow.



## **5.5 Change Affected as a result of research**

The results on the stages of e-commerce adoption for the SMMEs in the research study were shared with the Chamber. The researcher was invited to an e-commerce forum at the Chamber where the research results were presented to the SMMEs.

## **5.6 Final Conclusion**

In conclusion, e-commerce adoption of the SMMEs registered with the Cape Town Regional Chamber of Commerce and Industry in the Western Cape is at an early stage of e-commerce adoption. E-commerce is a process that involves various stages, namely a static website, e-commerce, e-business and e-enterprise. In adopting e-commerce SMMEs can either choose the “adoption ladder” approach for continuous development or the “managed strategic adoption” approach.

Despite criticisms being levelled at the “adoption ladder” approach, this approach is still being used by some SMMEs adopting e-commerce in the Western Cape. However a “managed strategic” approach would be more suitable where SMMEs aspire to business innovation and are faced with severe external competitive pressures. SMMEs participating in the research study have adopted an “adoption ladder” approach. However with maturity SMMEs may adopt “managed strategic adoption” approach, as this approach not only requires organizational readiness to adopt e-commerce but also needs internal user involvement, comfort level with new technologies, leadership and an accommodating a mature organisational structure.

## **5.7 Future Research**

A longitudinal study would be useful to track the maturity of SMMEs, to finalise the model given in Figure 5.1 with respect to future SMME e-commerce adoption. The study would examine in-depth to find the factors that determine whether an SMMEs follows an “adoption ladder” route or a “managed strategic adoption”.

## **5.8 Personal Reflection**

Undertaking this research study has shown me that whilst e-commerce offers potential benefits to SMMEs, it also requires SMMEs to review the competitive environment and determine organizational pressures for e-commerce adoption as part of the e-commerce adoption process. Once SMMEs have decided to adopt e-commerce, they need to acquire e-commerce organizational readiness and choose between an “adoption ladder” or a “managed strategic adoption” based on the competitive environment analysis.

On reflection, the only aspect I could have changed would be to expand the sources of obtaining SMMEs to lists and possibly business catalogues not only using the Chamber registered businesses. However, the selection of businesses to participate appeared to be acceptable and produced the required results in this research study.

## **5.9 Closure**

Undertaking this research has been a fulfilling and enriching experience. A journey of continuous development and learning from the review of the literature, empirical data and interaction with other researchers was travelled. This journey required endless support especially from the supervisor as this research field is an emerging area in South Africa. The researcher sincerely hopes the proposed model will assist potential e-commerce adopters to select between an “adoption ladder” and a “managed strategic adoption”.

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