

Factors Affecting E-commerce Adoption in Small and Medium Enterprises: An Interpretive Study of Botswana

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It's is sola gratia, that it is done. TO GOD BE THE GLORY!

List of Abbreviations

BOCCIM	Botswana Confederation of Commerce Industry and Manpower
EDI	Electronic Data Interchange
EFT	Electronic Funds Transfer
DIT	Diffusion of Innovation Theory
GDP	Gross Domestic Product
GITR	Global Information Technology Report
GOB	Government of Botswana
HATAB	Hotel and Tourism Association of Botswana
ICT	Information and Communication Technology
IMF	International Monetary Fund
IS	Information Systems
ISP	Internet Service Providers
IT	Information Technology
LEA	Local Enterprise Authority
NRI	Networked Readiness Index
OECD	Organisation for Economic Co-operation and Development
PC	Personal Computer
PERM	Perceived E-readiness Model
RBT	Resource-based Theory
SEM	Search Engine Marketing
SME	Small and Medium-sized enterprise
SNT	Social Network Theory
SNM	Social Networking Media
TAM	Technology Acceptance Model
TPB	Theory of Planned Behavior
TOE	Technology Organisation Environment
UNCTAD	United Nations Conference on Trade and Development
UK	United Kingdom
US	United States
USRE	University of Salford Research Ethics
WEF	World Economic Forum

Declaration

This thesis contains material which the author has used before in the following publications:

- Shemi A P and Procter, C.T. (2013). Explaining Contextual Factors affecting E-commerce Adoption Progression in selected SMEs: Evidence from Botswana. *International Journal of Management Practice*, 6 (1), pp. 94-109.
- Shemi A P and Procter, C.T. (2011). Challenges of E-Commerce Adoption in Botswana SMEs: A Multiple Interpretive Case Study, Paper presented at the Business Innovation and Growth conference, University of Botswana, July 2011
- Shemi A P and Procter, C.T. (2011). Insights from Preliminary Interpretive Case Studies on Factors Affecting E-commerce Adoption in SMEs: the Case of Botswana. Paper presented at the SPARC conference, June 2011
- Shemi A P and Procter, C.T. (2009). Understanding Key Factors Affecting Electronic Commerce Adoption by SMEs in Developing Countries: A literature review. Paper presented at the SPARC conference, May 2009.

Definitions

This section provides definitions of terms used in this thesis. For this study, the definitions will have to incorporate the dynamic ICT changes taking place in global business, yet bearing meaning to e-commerce developments in a developing country context.

Small and Medium-sized Enterprises (SMEs): The definition of SME is obtained from the South African business environment, which has similar social-economic characteristics to Botswana. These are: 1) small enterprise; is a firm that employs 1 to 49 persons and has an annual turnover of up to R13m (with a balance sheet of R5m), and 2) medium enterprise, a firm that employs 50 to 200 persons and has an annual turnover not exceeding R51m (with a balance sheet of R19m) (Government Gazette of the Republic of South Africa (2003) cited in Olawale & Garwe, 2010). The international rate of conversion of £1 (British Pound Sterling) is approximately equivalent to R13 (South African Rand) and P12 (Botswana Pula).

Electronic Commerce (e-commerce): Is the process of buying, selling, transferring, or exchanging products, services, and/or information based on the following prevailing conditions in developing countries: 1) that Internet and e-mail are easily available in these contexts and will be used to communicate business transactions, and/or 2) the use of the World Wide Web (in short, the web) to enhance business activity (Turban, King, McKay, Marshall, Lee, & Viehland, 2008). Further, there are some classifications of e-commerce; these are adopted from Turban, King, Lee, & Viehland, (2004) as follows:

- i. **Business-to-Business (B2B):** When business entities or organisations participate with other businesses or organisations to do e-commerce (known as B2B).
- ii. **Business-to-Consumers (B2C):** When a business or organisation entity provides products or services to individual customers (known as B2C). Turban et al., (2004) also calls it e-tailing because it includes retail transactions of shoppers.

- iii. **Consumer-to-Business (C2B):** Is a type of e-commerce in which individuals use the Internet to sell products or services to organisations, as well as, individuals who seek sellers to bid on products or services they need.
- iv. **Mobile Commerce (M-commerce):** E-commerce transactions and activities conducted in full or in part in a wireless environment. Further, m-commerce transactions targeted to individuals in specific locations, at specific times are known as location-based commerce (or l-commerce).
- v. **Intrabusiness e-commerce:** Includes all internal organisational activities that involve the exchange of goods, services, or information among various units and individuals in that organisation.
- vi. **Business-to-Employees (B2E):** An e-commerce model in which an organisation delivers services, information or products to its individual employees.

E-business: This study makes a distinction between e-commerce and e-business. Whereas e-commerce is a part of e-business, e-business is a generic term and encompasses the whole firm with the integration of all electronic processes from suppliers to consumers (Papazoglou and Ribbers, 2006).

Internet and the World Wide Web (www): The Internet is a global network of interlinked computer networks, whereas, the World Wide Web is a worldwide collection of electronic documents (Holden, Belew, Elad, & Rich, 2009, p. 3) that adds a graphical component to the Internet (Senn, 2004, p. 86).

Intranet and Extranet: Intranet refers to an internal corporate or government network that uses Internet tools, such as the web browsers and internet protocols, whereas an extranet is a network that uses the Internet to link multiple intranets (Turban et al., 2004, p. 5).

Research Paradigm: Guba and Lincoln (1994) define a paradigm as ‘*a set of beliefs about the nature of the ‘world’ and the individual’s place in it.*’ A research paradigm thus

defines a set of beliefs that researchers align with in order to understand and know reality. Further considerations regarding this term are discussed in Chapter 3. The following three definitions will define the commonly known research paradigms.

An Interpretive Study: As an interpretive study, this study takes the assumption that access to reality, given or socially constructed, is only through social constructions such as language, consciousness and shared meanings (Klein & Myers, 1999; Avison & Pries-Heje, 2005). Drawing from Walsham (1995b), the researcher uses her preconceptions to guide the process of enquiry, and also interacts with the human subjects of the enquiry, changing the perceptions of both parties. Further, the researcher aims to present a plausible account of what e-commerce is, how it is undertaken or the lack of it, and why, in a developing country context.

A Positivist Study: Positivist studies are premised on the existence of a priori fixed relationships within phenomena which are typically investigated with structured instrumentation (Orlikowski & Baroudi, 1991:5). “Such studies serve primarily to test theory, in an attempt to increase predictive understanding of phenomena. Positivist studies can be classified as such if there were evidence of formal propositions, quantifiable measures of variables, hypotheses testing, and the drawing of inferences about a phenomenon from the sample to a stated population (Orlikowski & Baroudi, 1991, p.5).” Studies that favour positivist approach in e-commerce adoption research in small and medium enterprises align with the assumption that there is an objective reality that can be methodically modeled, quantified and statistically measured and tested. Discussions in Chapters two and three will show why this paradigm was not suitable for this study.

A Critical Research Study: In Critical research, the main task is seen as being one of social critique, whereby the restrictive and alienating conditions of the status quo are brought to light (Klein & Myers, 1999). Critical research seeks to be emancipatory in that it aims to help eliminate the causes of unwarranted alienation and domination and thereby

enhance the opportunities for realising human potential (Hirschheim & Klein, 1994 cited in Klein & Myers, 1999, p. 68).

Weblog: A weblog, or blog, is a specialised website that allows an individual or a group of individuals to express their thoughts, voice their opinions, and share their experiences and ideas (Tan, Na, & Theng, 2011).

Web 2.0: Is a generation of technology deployed on the web loosely associated with a set of principles that they help to fulfill, including a rich user experience, a high-level of interaction, both user-to-user and application-to-application, and the radical decentralisation of the web (Lewis, Goto, & Gronberg, 2011). A similar definition is ‘a collaborative web development platform that has had tremendous usage in building effective, interactive, and collaborative virtual societies at home and abroad (Hossain & Aydin, 2011).’

Cloud computing: Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction (National Institute of Standards and Technology, 2011 cited in Poelker, 2012). A simpler definition provided by Wikipedia (2012) states ‘cloud computing is the delivery of computing as a service rather than a product, whereby shared resources, software and information are provided to computers and other devices as a utility (like the electricity grid) over a network (typically the Internet).’

Social network websites: Are websites that allow visitors to register and connect to other registered members in order to communicate or share resources (Thelwall, 2008).

Search Engine: Search engines are programs that search documents for specified keywords and return a list of the documents where the keywords were found. A *search engine* is really a general class of programs; however, the term is often used to specifically describe systems like Google, Bing, and Yahoo (Webopedia, 2012).

Hyperlink: Is a graphic or a piece of text in an Internet document that can connect readers to another page or another portion of the document (Christensen, 2012).

Maitlamo: ‘Maitlamo’ means commitment, a Botswana brand name for the National ICT policy (Maitlamo, 2004).

Abstract (summary version)

This study aimed to investigate the factors that affect e-commerce adoption in small and medium sized enterprises (SMEs) in the developing country context of Botswana. The research was undertaken using an interpretive paradigm with multiple case studies in nine SMEs that were codenamed C1Alpha, C5Home, C6Lodge C2Beta, C3Gamma, C4Teq, C7Panda, C8Estate, and C9Autoco. Data collection tools and techniques involved face-to-face semi-structured and unstructured interviews, telephone interviews, website content analysis, document analysis of SME reports and observations.

A conceptual framework was developed to capture elements from extant e-commerce adoption literature that are defined in the research question. Data collected from each of the SMEs was analysed to present the findings based on the elements described above. These elements include the following: 1) the nature and characteristic of the business environment, 2) use of ICT and Web Applications; 3) managerial characteristics and perception of e-commerce; 4) factors that affect e-commerce adoption or the lack of it; 5) the interaction of the factors and how they determine the level of e-commerce adoption, and 6) the role of the local business environment.

The main findings of this study are the factors for e-commerce adoption for each of the SMEs. The study emerges with factors of e-commerce adoption that have been derived from various patterns of e-commerce adoption as represented in the nature and characteristics of the SMEs. This study makes a theoretical contribution by proposing a conceptual framework for investigating factors affecting e-commerce adoption in SMEs. Methodologically, the study adds a different blend to the research approach by undertaking in-depth studies on selected SMEs in Botswana, and provides an interpretive assessment of e-commerce adoption research in a developing country context of Botswana. Strategies for improving e-commerce development in the selected SMEs are presented, as well as implications of the research findings. This study provides insights into understanding SME e-commerce adoption factors in other contexts with similar characteristics.

Abstract

Main Focus/Goal/Objective: This study aimed to investigate the factors that affect e-commerce adoption in small and medium sized enterprises (SMEs) in the developing country context of Botswana. This is against a background of literature that investigated e-commerce adoption in SMEs without much consideration of surrounding socio-technical issues.

Description of field from where data was collected: The research was undertaken using an interpretive paradigm by employing case studies of nine SMEs. These are; C1Alpha, C5Home, C6Lodge (in tourism sector); C2Beta, C3Gamma, C4Teq (in the ICT sector); and C7Panda, C8Estate, C9Autoco (in the manufacturing sector). Data collection tools and techniques involved face-to-face semi-structured and unstructured interviews, telephone interviews, website content analysis, document analysis of SME reports and observations.

Conceptual Framework: A conceptual framework was developed to capture elements from extant e-commerce adoption literature that are defined in the research question. Data collected from each of the SMEs was analysed to present the findings based on the elements described above. These elements include the following: 1) the nature and characteristic of the business environment; 2) use of ICT and Web Applications; 3) managerial characteristics and perception of e-commerce; 4) factors that affect e-commerce adoption or the lack of it; 5) the interaction of the factors and how they determine the level of e-commerce adoption; and 6) the role of the local business environment.

Principal Findings: Several factors have been discussed and their impact on individual SMEs in the sample. These are: managerial characteristics and perception of e-commerce adoption, skilled ICT personnel, availability and slow speed of the Internet, the cost of setting-up and maintaining Internet applications, access to payment facilities, organisational culture, supplier and customer preferences, security concerns, local business environment, government role as customer, and the global economic recession. In summary, the study found that although the factors have been widely known to affect e-

commerce adoption in SMEs, their manner of impact, interaction, and presentation in the selected SMEs shows similarities but differences as well.

Contribution to Knowledge: This study makes a theoretical contribution by proposing a conceptual framework for investigating factors affecting e-commerce adoption in SMEs. Furthermore, this research provides a theoretical contribution to e-commerce adoption literature on SMEs which has been inadequate. It provides a socially-constructed view of e-commerce adoption factors in a developing country context. Methodologically, the study provides an interpretive evaluation of e-commerce adoption research in a developing country context of Botswana. Strategies for improving e-commerce development in the selected SMEs are presented, as well as implications of the research findings. This study provides insights in understanding SME e-commerce adoption factors in other contexts with similar characteristics.

Chapter 1

Introduction and Rationale

1.0 Introduction

The study was born out of the author's concern to find answers that can explain SMEs intentions to use ICT and e-commerce in their organisations. Indeed, prior studies have deliberated a lot in this area, in developed countries (e.g. Scupola, 2009, Chibelushi & Costello, 2009; Brand & Huizingh, 2008; Karakaya & Shea, 2008; Wilson, Daniel & Davies, 2008; Bharati & Chaudhury, 2006; Teo & Ranganathan, 2004; Grandon and Pearson, 2004; Daniel, 2003; Drew, 2003) as well as developing countries (Olatokun & Kebonye, 2010; Duncombe & Molla, 2009; Tan, Tyler, Manica, 2007; Looi, 2005; Molla & Licker, 2005a; Cloete, Courtney & Fintz, 2002; Magembe and Shemi, 2002) to just to name a few. Some researchers have concluded that the chapter is closed (Chitura, Mupemhi, Dube & Bolongkikit, 2008) whilst others have advocated for new dimensions of understanding e-commerce adoption issues in SMEs (Parker and Castleman, 2007). As long as ICT developments are dynamic, it follows that e-commerce issues in organisations would also draw on this characteristic, thus requiring more reason to establish patterns of e-commerce development and its application in organisations.

This study argues for a socio-technical dimension that situates e-commerce adoption in the Botswana context, to understand the following issues: the nature and characteristics of SME e-commerce environments; the factors that affect e-commerce adoption, the interaction of the factors to determine the extent of e-commerce adoption, and lastly, a strategic analysis of the way forward for the SMEs, that synthesises the findings of the whole research study. Thus, the study is an attempt to holistically enter an organisation mostly from its day-to-day activities, and answer questions that relate to how and why e-commerce has progressed. Thus, keen interest is not in best-practice scenario per se, but rather in seeking understanding from various SME scenarios that are represented in a developing country context. To undertake the study, I sought to interact with the SMEs and discover the pertinent issues that cause them to act the way they do in dealing with ICT and e-commerce issues.

The rest of this chapter is organised as follows; the problem statement domain is introduced which focuses on the rationale for SMEs and e-commerce adoption. The chapter then discusses Botswana's ICT developments, its e-readiness, the networked readiness index, and the e-commerce environment. The chapter also introduces the sectors of focus such as the tourism, ICT and manufacturing sector. A section on the scope of the study is provided to guide the reader on pertinent issues that are being studied. The next section explains the research questions and objectives which provide a focus on the issues of concern in this study. The conceptual framework is introduced to guide the reader on how the study was undertaken. The structure of the thesis is the last section in this chapter. It introduces the reader to chapter headings and their summaries and conclusions.

1.1 The Problem Statement Domain

1.1.1 SMEs and E-commerce Adoption-The Rationale

Small and Medium-sized Enterprises (SMEs) are a significant component of many economies in the world (Mutula & Van Brakel, 2007). This is because of the contribution they make in creating employment and facilitating regional development and innovation (Jones & Beynon-Davies, 2011; Bharati & Chaudhury, 2006), thus impacting on the economy of their countries. The development of SMEs is on the agenda of many countries and nations across the globe. Rapid developments in information and communication technologies (ICT), especially the Internet, have brought about a lot of changes in the world, both in developed and developing countries (Jones & Beynon-Davies, 2011; Montazemi, 2006; Looi, 2005) in virtually all walks of life. For businesses, large and small, there is motivation to expand commercial activities beyond the physical boundaries of the organisations into distant geographical regions through the domains of computer networks, telecommunications, satellite broadcasting, digital television (Chaston, 2004) and the Internet. The channels of these networks were mostly through personal computers (PC's) but Internet technology more recently has facilitated the use of devices such as digital cell phones, smart phones, palm-pads and laptop computers (Senn, 2004, p. 382), and many similar devices.

Drawing from Turban et al., (2008), electronic commerce (e-commerce) is defined as ‘the process of buying, selling, transferring, or exchanging products, services, and/or information through e-mail, Internet, and the world wide web.’ The rationale for this definition emanates from the fact that most developing countries have lagged behind in acquiring and using ICT resources in their business due to several challenges such as lack of ICTs, unfriendly regulatory policies, lack of financial resources and several other reasons (Kshetri, 2007).

This study focuses on the activities of the SME sector based on the holistic and contextual view of e-commerce that suits their environment (Avgerou, 2000). It situates the SME organisation as the actor and user of any type of ICT, such as PCs, laptops, smart-phones, personal digital assistants (PDA), pagers and any other similar devices (Ngai & Wat, 2002). The aim of this study is not to showcase best-practice in e-commerce adoption cases from the developing country context as has been done by Scupola (2009), Kshetri and Dholakia (2002) and others in developed economies. Rather, the study aims to depict the natural environment in which SMEs exist in a developing country scenario, how they started the business, and how they grapple with pertinent issues regarding e-commerce and its development in the firm. The emphasis is therefore to explore the internal and external environment of SMEs on one hand and on the other, reflect on how the phenomena of e-commerce has been understood and applied in a developing country context. Of particular interest also, are SMEs that have missed representation in the mainstream scholarly publication pool because they have failed or discontinued the development of e-commerce. The aim is to build understanding of SME e-commerce environments (Martinsons, 2008; Tarafdar & Vaidya, 2006) by targeting a less researched area of developing countries and thus contribute to knowledge in the ever-changing area of e-commerce.

The benefits of ICT, in particular the Internet, are generally well-acknowledged now although attaining such benefits has been elusive to many firms worldwide (Montazemi, 2006). Some of the benefits of the Internet and other associated networks include; reductions in transaction cost, and easy reach to global markets, easier facilities for branding, opportunities for

multiple trading partners, and the chance to refocus on core competencies of the business, amongst many others (OECD, 2004, 2002; Van Akkeren & Cavaye, 1999).

The adoption of electronic commerce (e-commerce) in SMEs remains a critical area of investigation in information systems research (Parker & Castleman, 2009; MacGregor, 2004). Several e-commerce adoption studies in SMEs have been undertaken in developed countries as can be represented by a few (Scupola, 2009, Chibelushi & Costello, 2009; Brand & Huizingh, 2008; Karakaya & Shea, 2008; Wilson, Daniel & Davies, 2008; Bharati & Chaudhury, 2006; Teo & Ranganathan, 2004; Grandon and Pearson, 2004; Daniel, 2003; Drew, 2003). Similarly, developing countries can be represented by these studies (Tan, Tyler, Manica, 2007; Looi, 2005; Molla & Licker, 2005a; Cloete, Courtney & Fintz, 2002; Magembe and Shemi, 2002) although the overall representation in scholarly publications shows that there are fewer studies in developing countries. Issues that have been discussed are diverse, ranging from different industries, country studies, and the use of specific ICT applications (Ngai & Wat, 2002). A key area of concern in the previous studies is the lack of detail on how e-commerce adoption in SMEs is undertaken as most researchers have used exploratory research methods such as surveys that lack depth and theoretical foundation (Riemenschneider et al, 2003). The complex and idiosyncratic nature of SMEs (Parker and Castleman, 2009) is usually glossed over in a rush to summate a collective and generalised understanding of the factors affecting e-commerce development in the organisation.

Researchers do agree that a one-size-fits-all model may not be attainable (Molla and Licker, 2005b; Avgerou, 2000; 1998) in the deployment of e-commerce in SMEs due to the different ways in which organisations are inherently structured (Drew, 2003; Rolland & Monteiro, 2002; Southern & Tilley, 2000). The unequal distribution of ICT infrastructure, products and services, between the developed and developing countries, or urban and rural SMEs also accounts for differences in how e-commerce is appreciated and applied in organisations. Previous studies have shown that the availability of ICT resources in developed countries has contributed to their having an upper hand in adoption and assimilation of ICT innovation (Scupola, 2009). In developing countries, ICT resources have been difficult to acquire and

use, and the cost of acquiring e-commerce infrastructure has been very high for many SMEs. Moreover, the many ICT project failures in developing countries that are attributed to ‘poor understanding’ of issues in context (Heeks, 2002) leading to inappropriate solutions to ICT problems (Avgerou, 2000), require attention. These concerns are equally applicable in areas such as e-commerce adoption.

Theories and frameworks have been employed in previous studies (Mohamad & Ismail, 2009; Parker & Castleman, 2009; Tan et al., 2007) to advance research and practice of e-commerce adoption in SMEs. Some of these are briefly mentioned here:

1. Theory of Planned Behaviour (Ajzen, 1991),
2. Technology Acceptance Model (Davis, 1986),
3. Technology Organisation-Environment Model (Tornatzky & Fleischer, 1990; Riemenschneider et al., 2003),
4. Diffusion of Innovation Theory (Brand & Huizingh, 2008; Saffu, Walker & Hinson, 2008; Grandon & Pearson, 2004), and
5. the Perceived E-readiness Model for developing countries (Molla and Licker, 2005a; 2005b).

Some brief explanations on each of these has been made in section 2.4, although it suffices to mention here that most of the studies that have applied theories and/or frameworks have involved developed country nations (Sharma et al., 2004) such as USA, UK, Japan, Western Europe, Australia, and others. There are few studies represented in developing countries especially in Southern Africa that have applied theoretical approaches in e-commerce adoption. Furthermore, a majority of previous studies have concentrated on the positivist tradition inclined to methodological approaches that are distant from the research participants. This study aims to contribute to the research gap by investigating e-commerce adoption issues in close engagement with the research participants. The application of theory to the understanding of SME e-commerce environments is still lacking especially in developing country context of Southern Africa. Parker and Castleman (2009) argue that theory that explains e-commerce adoption in SMEs must embrace the idiosyncratic and heterogeneous nature of SMEs.

Another dimension to the motivation of this study is that previous studies that incorporate theories of ICT adoption have focused on measuring the potential adopters' perception of technology (Moore & Benbasat, 1991; Harrison, Mykytyn & Riemenschneider, 1997), rather than the actual actors' experiences in the process of technology adoption. Cushman & Klecun (2005) argue that non-users may not be in a position to perceive the usefulness or ease of use of technology before they actually use it. Following a similar reasoning, the application of perception-based theories in the developing country context of Sub-Saharan Africa has been challenged because of the low levels in ICT infrastructure and use, low ICT skill and expertise, and poor macro-economic policies (GITR, 2012). Thus, there tend to be many potential adopters who may not actually implement the technology due to several challenges facing SMEs from within and external to the firm. This study aims to understand these various scenarios and historical backgrounds in the adoption of e-commerce in SMEs. The aim is to understand what causes some organisations to thrive and others to struggle in the development of new ICTs and e-commerce. Ultimately, the study aims to contribute to empirical studies on the status of e-commerce adoption in developing country SMEs which has been scanty in scholarly literature.

This motivation for the application of ICTs and e-commerce technology in SMEs has been founded from various objectives defined by the owners or key decision-makers in organisations. Whilst many SMEs in developing countries have employed ICTs as mere 'catch-up' tools for fear of not being left behind (Molla & Licker, 2005a; Magembe & Shemi, 2002; Humphrey et al., 2003), this study elevates e-commerce adoption for purposes of economic gain in the firm. The essence of strategic intent in e-commerce adoption has been scarcely addressed in e-commerce adoption literature. This study takes the strategic assumption of e-commerce adoption that aligns with Forman, Goldfarb, & Greenstein's (2003) emphasis on 'enhancement', that is, 'adoption of Internet technology to enhance computing processes for competitive advantage.' The study will make recommendations on the strategic direction that SMEs in Botswana can follow.

Adopting e-commerce has not been easy for SMEs world-wide (Jones, Packham, Beynon-Davies, & Pickernell, (2011), partly because of the ever-changing field of information systems and the varying needs of local and global business in general. Previous studies of ICT and e-commerce adoption report that SMEs in developing countries generally have not capitalised on the power of the Internet to extend their business beyond traditional borders (Bai, Law & Wen, 2008; Molla & Licker, 2005a; Humphrey et al., 2003) except in the application of simple technologies such as electronic mail (Mpofu et al., 2011). Some of the reasons put forward from the literature include; cost of acquiring and operating ICT, lack of ICT and e-commerce knowledge, owner/manager low literacy levels, inability to perceive e-commerce benefits, unfriendly regulatory policy and requirements, cultural issues and dependence on customer or supplier preferences. Little is known of how these situations emerge in developing country SMEs as previous studies have leaned on making decisions based on exploratory surveys.

This study aims to advance the understanding of e-commerce adoption from the 'inside' of the organisation, to unearth the social-technical issues that can explain the SME e-commerce adoption or non-adoption. Of interest are issues that relate to the nature and characteristic of e-commerce environments in SMEs, what factors affect the adoption, and how these factors interact in determining the level of e-commerce adoption. Furthermore, the study also traces moments of discontinuity, rejection or failure of e-commerce initiatives with the aim of understanding pertinent issues that confront SMEs in developing countries. This study traces the origin of e-commerce from the grass-roots level of an organisation. The study therefore contrasts with general factor studies that are meant to list motivating or inhibiting factors (Mohamad & Ismail, 2009). Botswana is chosen not for any special peculiarities but rather as a developing Southern African and land-locked country with social and economic characteristics that can provide a rich and unique dimension in e-commerce adoption literature. There is still little knowledge about SMEs and e-commerce in developing countries in comparison to developed countries and so this study assists in filling the gap (Mpofu et al., 2011). Another reason for situating Botswana for this study is that as a resident of this

country over the past ten years, the researcher has established a number of contacts with the industry and SME community that would provide easy access for research.

1.1.2 SME Characteristics and E-commerce Adoption Environments

This study aims to understand SMEs and the conditions that enable and disable e-commerce adoption. The characteristics of an organisation in terms of ICT resources provide, to an extent, an indication of what managers and CEOs are up to regarding e-commerce adoption and utilisation in their firms. According to Mpofu et al., (2011), SME characteristics that may be considered are: ICT readiness; external pressure from customers; suppliers and competitors; the business structure; size; sector, and status; and information intensity. In previous studies, SME e-commerce adoption environments have usually required an understanding of the background and constituents of ICT by undertaking e-readiness studies (Duncombe & Molla, 2009; Mutula & Van Brakel, 2007; Molla and Licker, 2005a; 2005b). It may be appreciated that e-commerce readiness studies provide indicators of what resources are required for organisation but in most cases, the ICT or e-commerce readiness tools are merely artifacts that may not offer a direct influence to decision-making process related to e-commerce adoption. According to Cragg, Caldeira & Ward (2011) a low level of organisational readiness is a key reason for slow adoption or an inability to adopt e-commerce. Further, they define readiness as the level of knowledge about the Internet by managers as well as having the technology required in developing an e-commerce website.

1.1.3 SMEs and ICT in Botswana

Botswana has an economy that embraces and nurtures the activities of SMEs. The government of Botswana has been looking for strategies to diversify the economy from the dominance of two sectors; mining and government, by encouraging small and medium enterprises from various industries and sectors (Maitlamo, 2004, NICT Policy, 2007).

The application of ICT and electronic commerce (e-commerce) in the SME sector is a crucial area whose positive impact can add social and economic value to Botswana. As in other developing countries, the deployment of ICT in Botswana SMEs has been challenging because of several reasons such as; the lack of ICT infrastructure, security reasons including

uncertainty about trustworthiness of electronic transactions, lack of credit cards for electronic purchases, poor financing, lack of strategic positioning in terms of ICT, and the lack of skill and expertise to use and apply ICT in the transformation of their business processes (Olatokun & Kebonye, 2010; Duncombe & Molla, 2009; Uzoka et al., 2007). There is reason to believe that the slow uptake of ICT and e-commerce by other SMEs in the Southern African region (Humphrey et al., 2003) has influenced Botswana SMEs to follow their trend. In fact, the South African market is the first foreign destination for Botswana products and services and furthermore, Botswana's private sector is largely managed by South African companies.

According to the draft National ICT policy report (Maitlamo, 2004), a number of initiatives are being taken to boost the economy, including the expansion of e-commerce activities locally and internationally. The draft National ICT policy document stated that current e-commerce development in the country is minimal, and is concentrated in the financial sector and subsidiaries of foreign-based companies, mostly from South Africa. It must be noted however, that the draft National ICT policy is over eight years old and very little e-commerce policies have been developed since 2004. In 2007, the government of Botswana officially presented the National ICT Policy (NICT Policy, 2007) in parliament. Adopting ICT and incorporating the new order of business has been difficult to contend with as little information is available to SMEs on how to go about it. There are several areas that show gross deficiencies in the appreciation of ICT in general due to illiteracy on one hand and some adherence to traditional ways of doing business on the other (NICT Policy, 2007, Maitlamo, 2004). As a participant in the work that drafted the National ICT policy document, the author is a witness to encounters that show that most SMEs lack practical knowledge on how to use ICT and e-commerce for business gain. There are genuine cases that point to the lack of, or poor ICT and telecommunications infrastructure in some instances especially in rural areas (Duncombe & Heeks, 2002), whereas in urban areas, SMEs blame the poor conditions in the local environment for the slow adoption of e-commerce (Uzoka et al., 2007).

The government of Botswana (GOB) has played a significant role in providing institutional frameworks that assist SMEs such as the Citizen Empowerment Development Agency (CEDA) and the Local Enterprise Authority (LEA). The private sector has organisations such as the Botswana Export Development and Investment Authority (BEDIA) and Botswana Confederation of Commerce, Industry and Manpower (BOCCIM) whose activities aim to improve the welfare of SMEs in all sectors of the economy.

As a landlocked country and with an economy that heavily depends on the mining industry, Botswana's focus in this study will provide some insights that can inform research and practice in the wider information systems community. As ICT frequently changes, there is a need to understand how SMEs cope with technological developments and what factors affect their decision-making process. This gap in knowledge, as discussed above, is one of the motivations for this study, especially in Southern Africa where there is inadequate representation in scholarly journal publications. There is a need to understand the contextual perspective of the challenges of e-commerce adoption in SMEs in Botswana that can take cognisance of the peculiar nature of the Botswana business environment.

The next section discusses the SMEs and ICT issues in Botswana.

1.1.4 Background on SMEs and ICT in Botswana

Previous studies on Information and ICT in SMEs found that the Botswana business environment thrived on informal systems (Duncombe & Heeks, 1999, 2002), and that they preferred traditional face-to-face methods of conducting business as opposed to using ICT or e-commerce. Depending on the geographical location of the SME, obtaining business-related information has been a challenge due to lack of power or electricity to charge their cell phones (Duncombe & Heeks, 2002). The National ICT policy also noted the disparities in ICT use between urban and rural SMEs (NICT Policy, 2007). The report stated that urban SMEs have had relatively better support in ICT infrastructure than the rural SMEs with several Internet Service Providers to choose from. The rural SMEs are usually serviced with one mobile phone operator as other operators find these areas not sustainable for business.

Iyanda & Ojo (2008) examined the motivation, influences, and perceived effect of information and communication technology (ICT) adoption in Botswana organisations. They found that ICT applications are still at an elementary stage, mainly for communication and record-keeping. These kinds of dilemmas have been on-going for a while and it is feared that the mobile revolution hype might also skip most SMEs in the Sub-saharan Africa region (Mbarika, Okoli, Byrd, & Datta, 2005; Heeks, 2009). Social and cultural behaviours also contribute to the slow pace of adopting ICT and e-commerce in SMEs as managers feel more comfortable with face-to-face interactions (Uzoka et al., 2007). Several measures have been undertaken to improve e-commerce laws by the banks but their benefit to the SMEs are yet to bear fruit due to delays in enactment.

The study by Olatokun & Kebonye (2010) on e-commerce adoption issues in Botswana found that SMEs generally lacked support to undertake certain business activities. Another key finding was the issue of security that was still a concern in e-commerce activities. The impact of these findings on individual SMEs cannot be easily understood as the survey method was employed in data collection. There is therefore need to understand e-commerce issues in SMEs in a holistic way to unearth issues that hinder their growth and development of e-commerce.

1.2 Botswana and ICT developments

1.2.1 The Botswana Landscape

Botswana, 582,000 square kilometres in size, is a Republic lying at the centre of the Southern Africa Plateau at a mean altitude of 1,000 meters above sea level. Seventy-five per cent of the country lies to the north of the Tropic of Capricorn (see map in Figure 1.2.1). It is bounded by the Republic of South Africa, Namibia, Zambia and Zimbabwe. About 89% of the population lives in the eastern part of the country where rainfall is better than the rest of the country (Central Statistics Office, 2005).



Figure 1.2.1: Map of Botswana (source: www.lonelyplanet.com/maps/africa/botswana/)

The country is democratically governed, boasts a growing economy and a stable political environment. Botswana is the largest exporter of gemstone diamonds in the world as well as a large beef exporter to the European Economic Community. The mining sector contributes in the range of 30 - 35% of Gross Domestic Product over the past 10 years. The exploitation of minerals also influences population settlements and calls for transportation of water, power and communications, and generates a growing demand for food stuffs and other activities (Central Statistics Office, 2005).

1.2.2 E-readiness and the Botswana Context

E-readiness is defined as a measure of the country's ICT infrastructure and the ability of its consumers, businesses and governments to use ICT to their benefit (Economist Intelligence Unit Limited, 2008). In this study, the e-readiness concept is drawn from the World Economic Forum (WEF) studies of 2003 and 2009. The WEF has now continued to produce annual reports of the e-readiness status of countries known as the Networked Readiness Index (NRI).

1.2.2.1 The Networked Readiness Index

The Networked Readiness Index (NRI) is defined as a nation's or community's degree of preparation to participate in and benefit from ICT developments (WEF, 2003). It is argued (WEF, 2003) that 'the Networked Readiness Framework and its components provide not only a model for evaluating a country's relative development and use of ICT, but also allow for a better understanding of a nation's strengths and weaknesses with respect to ICT.'

The NRI has been based upon the following concepts (WEF, 2003):

- That there are three important stakeholders to consider in the development and use of ICT: individuals, businesses, and governments;
- That there is a general macroeconomic and regulatory *environment* for ICT in which the stakeholders play out their respective roles;
- The degree of *usage* of ICT by (and hence the impact of ICT on) the three stakeholders is linked to their degrees of *readiness* (or capability) to use and benefit from ICT.

Thus for each country, NRI measures the key factors relating to the environment, the readiness, and the usage of the three stakeholders in the Networked Readiness Framework (individuals, businesses and governments). Details of the three key factors are as follows:

Environment: The Environment component index is designed to measure the degree of conduciveness of the environment that a country provides for the development and use of ICT (WEF, 2003). Furthermore, NRI derives this measure from three sub-indexes, namely; Market, Political/Regulatory, and Infrastructure. These are described as follows:

- **Market:** the assessment of the presence of the appropriate human resources and ancillary businesses to support a knowledge-based society. Market forces are varied and include 'fundamental macroeconomic variables like gross domestic product (GDP) and import /export, commercial measures like availability of funding and skilled labour, and the level of development of the corporate environment'

- **Political/Regulatory:** The priorities of a nation are reflected in its policies and laws that in turn influence its rate of growth and direction of development. This component measures the impact of a nation's polity, laws and regulations, and their implementation on the development and use of ICT;
- **Infrastructure:** Is defined as the level of availability and quality of the key access infrastructure of ICT within a country. A quality ICT access infrastructure facilitates the adoption, usage, and impact of these technologies which further promote investment in ICT infrastructure. Therefore, it is argued that infrastructure plays a critical role in the networked readiness of a country (WEF, 2003).

Readiness: The Readiness component measures the capability of the principle agents of an economy (citizens, businesses, and governments) to leverage the potential of ICT. This capability is derived from a combination of several factors such as the presence of relevant skills for using ICT within individuals, access and affordability of ICT for corporations, and government use of ICT for its own services and processes. There are three sub-indexes that measure readiness under individual, business, and government dimensions (WEF, 2003). These are described as follows:

- **Individual Readiness:** This measures the readiness of a nation's citizens to utilize and leverage ICT. Factors that are used to measure this include the literacy rates, mode and locus of access to the Internet, and the degree of connectivity of individuals.
- **Business Readiness:** This measures the readiness of businesses to participate in and benefit from ICT. The aim of this sub-index, according to the WEF (2003) report, is to include not only large corporations but also small and medium-sized firms.
- **Government Readiness:** This measures the readiness of a government to employ ICT. It is reflected in the policy-making machinery and internal processes of the government and in the availability of government services online.

Usage: As the third major component, usage aims to measure the degree of ICT by the principal stakeholders of the NRI framework, namely: individuals, businesses, and governments.

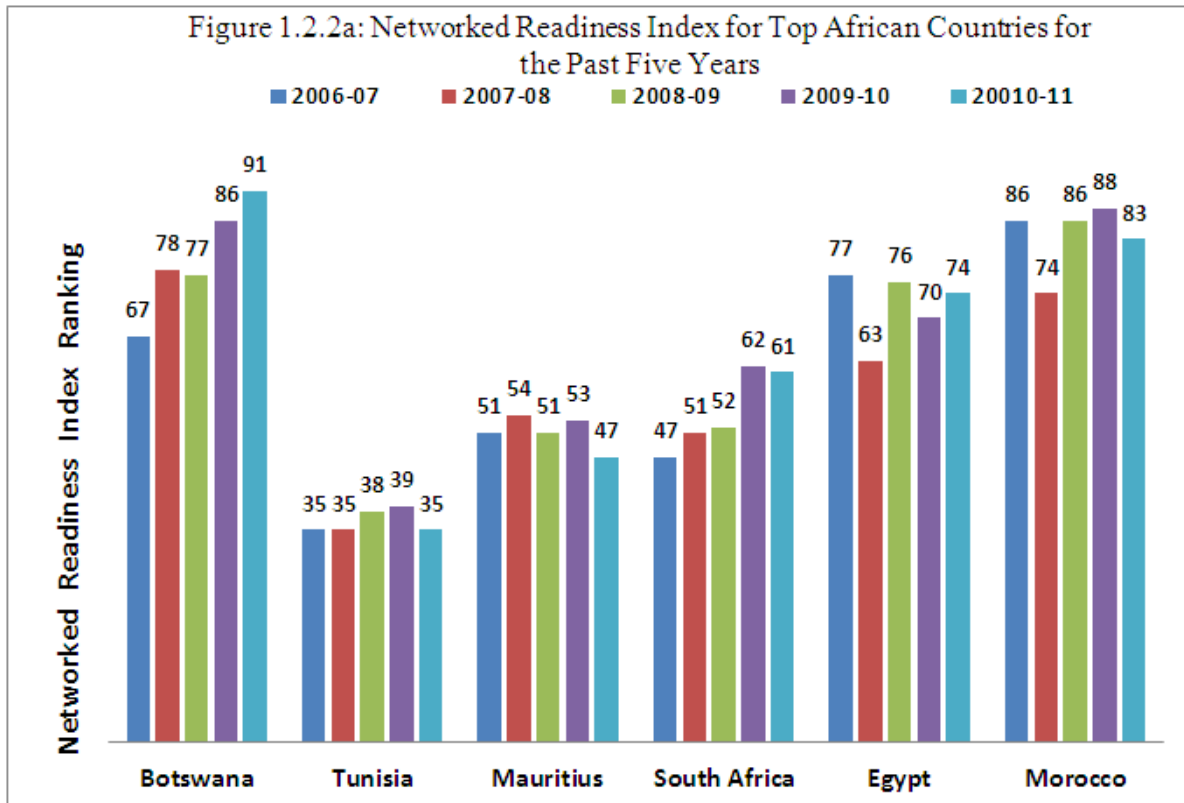
- **Individual Usage:** This gives an indication of the level of adoption and usage of ICT technologies by a nation's citizens. This is done by assessing the deployment of connectivity-enhancing technologies like telephones and Internet connections, level of Internet usage, and money spent online.
- **Business Usage:** Business usage measures the level of deployment and use of ICT across businesses in a nation. It is determined by factors such as the level of B2B and B2C e-commerce, the use of ICT for activities like marketing, and levels of online transactions.
- **Government Usage:** This is the level of use of ICT technologies by the government of a given country. Factors used to measure this are: volume of transactions between businesses and governments, and the presence of government services online.

From the above definitions of the elements of NRI, there are two common measures of the NRI: the ranking of countries, from the best-rated country (ranked 1) to the poorest country that obtains the position based on the number of countries participating in the study; and a score that ranges from 1 (lowest) to 7 (highest) based on a criterion of analysis.

1.2.2.2 Botswana and the Networked Readiness Index

Botswana is amongst the best countries in Africa in e-readiness rankings (NICT Policy, 2007; Maitlamo, 2004; World Economic Forum, 2003, 2009) although there is a sharp divide between urban and rural areas so far as the distribution of ICT infrastructure is concerned. In 2009, Botswana's Global competitiveness rating was 66th out of 133 countries and Networked Readiness ranking was 86th (World Economic Forum, 2010). In 2011, the Global Information Technology Report (GITR) (World Economic Forum, 2011) downgraded Botswana to rank 91 in NRI, out of 138 economies that participated. Other African countries such as The Gambia, Senegal, Kenya and Namibia have now entered the race to surpass Botswana. Figure 1.2.2a shows the Networked Readiness Index of five top African countries whilst Figures

1.2.2b and 1.2.2c show Botswana scores in the three main factors; the Environment, Readiness and Usage in GITR-2010 and GITR-2011 (World Economic Forum, 2011). The scores are derived from an aggregate from range 1 to 7, with 1 being lowest score and 7 the highest score.



Source: World Economic Forum (2011)

The GITR reports show that Botswana's *Environment* is generally good for business including SMEs, although this has dropped from rank 65 in 2010 to rank 74 in 2011. A poor score is noted on the number of days and procedures needed to start a business, the state of cluster development and Internet and Telephony competition. Indicators under *Readiness* show weakness in individual readiness, mobile and fixed phone pricing, education, training and literacy and quality of local suppliers. Under *Usage*, a number of weaknesses are noted in business usage such as capacity for innovation, extent of business internet use, impact of ICT on new products and services, and organisation models. Despite the drop in ranking from

previous years, the country is on course to liberalize and diversify the ICT and business sector.

Figure 1.2.2b: Botswana Networked Readiness Index 2009–2010: The framework,
 Source: *The Global Information Technology Report 2009–2010* © 2010 World Economic Forum

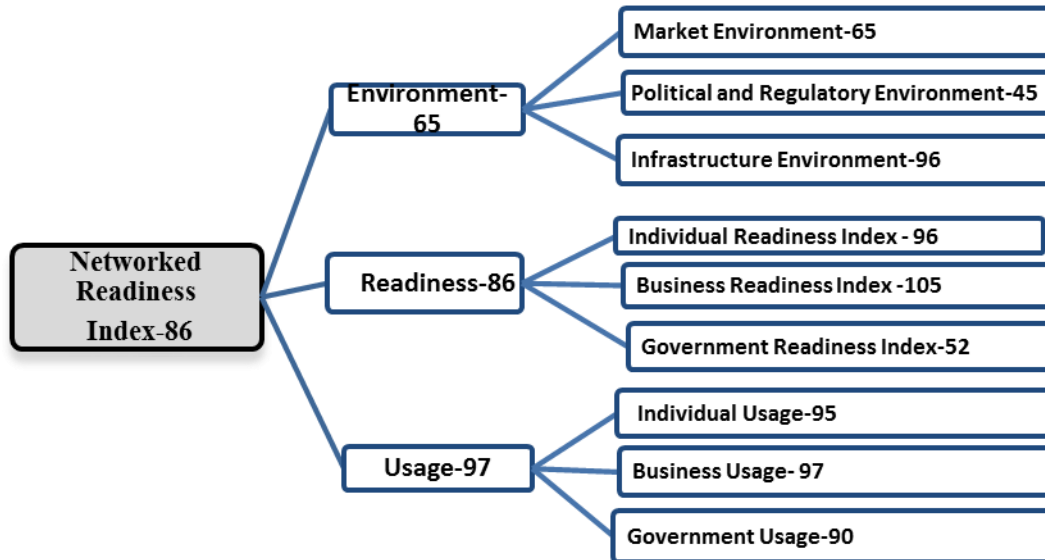
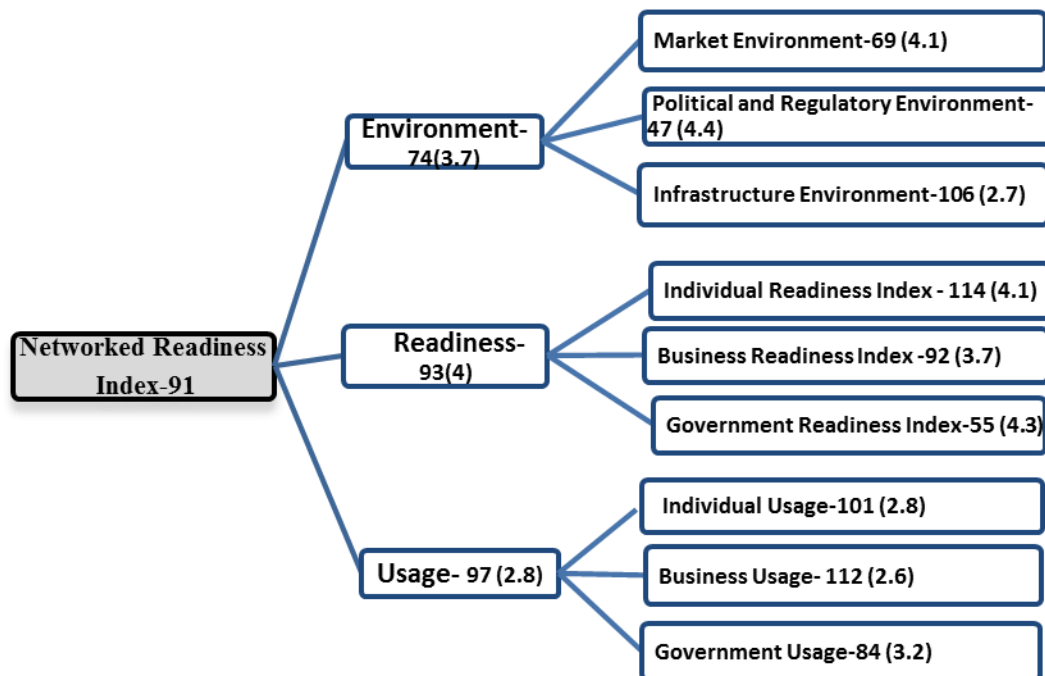


Figure 1.2.2c Botswana Networked Readiness Index 2010–2011: The framework
 The Global Information Technology Report 2010–2011 © 2011 World Economic Forum



The latest report on the Global Networked Readiness ranking places Botswana on 89th position amongst 142 countries, two steps higher than the previous ranking. Internet bandwidth penetration and internet users are few whilst the use of mobile telephones is very high. The very low levels of Internet usage by individuals and businesses remain areas of particular concern as any meaningful e-commerce adoption in SMEs depends on an improvement in Internet infrastructure. Recent government initiatives that align with its Vision 2016 Pillars target ICT as a socio-economic enabler that can positively impact the lives of people for both social and business purposes. The government pledged to roll out ICT services to the population where they live, play, and study (Maitlamo, 2004) but the slow developments in providing relevant support to the SME sector remain in stark contrast to these declarations made several years ago.

1.2.3 E-commerce Environment of Botswana

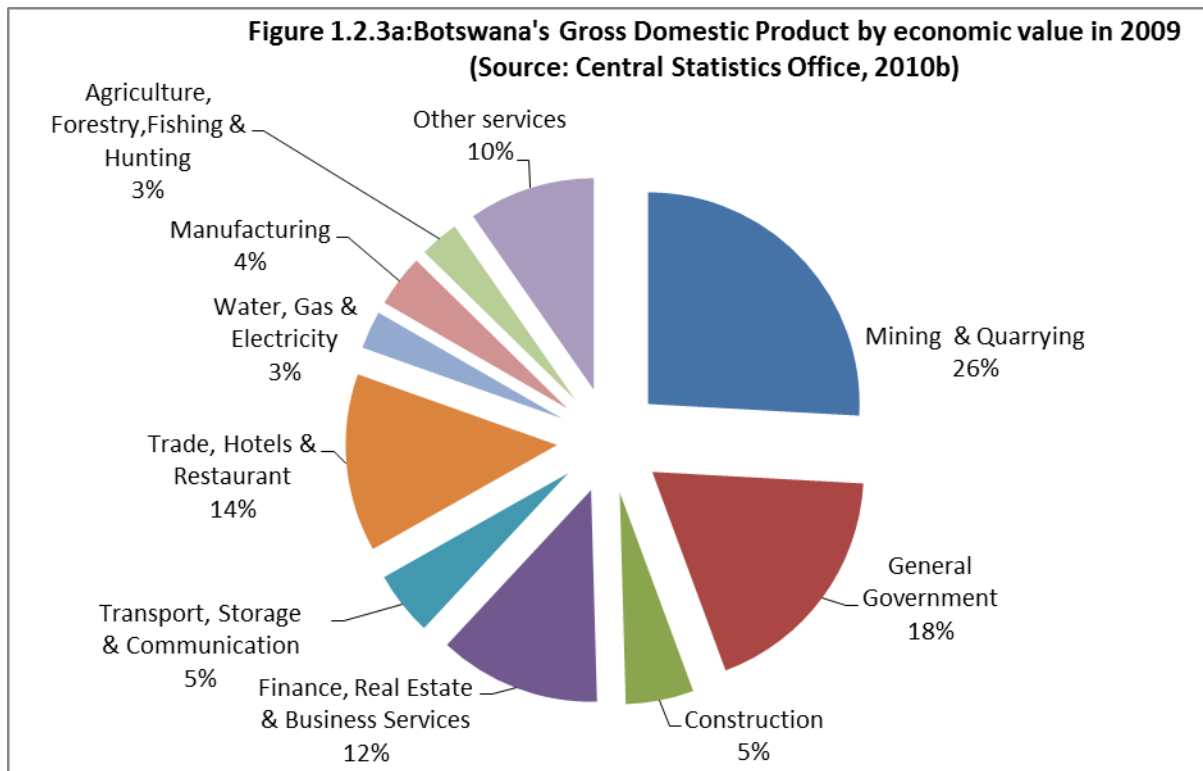
Botswana's national ICT policy (NICT Policy, 2007; Maitlamo, 2004) provides guidance on the application and significance of e-commerce in the country. E-commerce issues and concerns as given in the National ICT policy document acknowledge the disparities in the distribution of ICT products and services in the country, commonly known as the domestic divide. As noted in the e-readiness review in the previous section, there exists extreme disparities in ICT use and application in several areas. The urban cities are relatively well supplied with radio, television, telephone and Internet services whereas the remote and rural regions are in dire need of these facilities. Within corporate entities, the general e-readiness status is comparatively higher than in individual homes, as has been shown in the networked readiness report (Maitlamo, 2004) and the current networked readiness status reported in the GITR (2012). The national ICT policy, which was officially published by the government of Botswana in 2007, also shows the relatively low numbers of skilled ICT personnel in the country and is still being reflected in the recent statistics. Botswana has been ranked 89th out of 142 countries that participated in the analysis (GITR, 2012). Within the private sector, a few multinational organisations exist that provide professional ICT services to the government of Botswana (GOB) and other public institutions. There are several small firms that also joined the ICT industry with the aim of providing services to the GOB and other public institutions. In terms of policy regulation, the Botswana Telecommunications

Authority (BTA) is an independent organisation, created to supervise and regulate all types of telecommunication services in the country. In order to protect government interest in the country, another public firm, Botswana Telecommunications Corporation (BTC) exists to provide telecommunications services to government and the local market. Table 1.2.3a shows electricity tariff rates for business organisations for 2009 (Central Statistics Office, 2010b).

Table 1.2.3a: Electricity Tariff Rates for Botswana Organisations (Source: Central Statistics Office, 2010b)			
	Small business	Medium business	Large business
Fixed Charge (Pula per month)	P29.74	P29.74	P29.74
Energy Charge (Pula per kWh)	P0.4579	P0.2348	P0.2117
Demand Charge (Pula per kW per month)	Nil	P56.21	P56.91

Table 1.2.3a shows that there is no special preference for small firms as they are charged similar rates to medium and large firms. The energy charge is more for small firms than for other firms, which does not indicate an incentive in power consumption.

There are several industries that are actively participating in boosting Botswana's economic status. Figure 1.2.3a shows a distribution of the gross domestic product (GDP) in 2009 (Central Statistics Office, 2010b).



Three industries or sectors were selected for this study owing to their significant contribution to the national economy of Botswana as identified in the national ICT policy documents (NICT Policy, 2007; Maitlamo, 2004) and Figure 1.2.3a. The industries are tourism, ICT and manufacturing. These are briefly introduced in the next sub-sections.

1.2.3.1 The Tourism and Hospitality Industry

The Tourism and Hospitality Industry, hereafter simply known as ‘Tourism’ in this study is a vibrant industry in Botswana for income generation and provision of employment. About 17% of Botswana territory is designated as protected area, whilst an additional 20% is conserved as a wildlife management area. The most popular landscape includes: the Okavango delta, Kalahari Desert, Chobe River and Makgadikgadi Pans and the National Parks. Since 1994, the rate of increase in tourist arrivals has been an average of 8.4% per annum. In 2008, there were approximately 1.5 million tourist arrivals (Central Statistics Office, 2010b; NICT Policy, 2007). Coming second to diamond mining, the Tourism industry is significant as it provides employment to citizens and is an easy industry for local Botswana

to participate in entrepreneurial activities. Tourism can be sub-divided into three sub-sectors. These are: 1) transport and travel, 2) hospitality, and 3) arts and crafts, pottery, and the like. This study has excluded firms in the transport and travel category.

1.2.3.2 The ICT industry

The ICT industry is the second industry that has been included in the study. It is crucial to understand how SMEs operate in this industry as the ICT industry is both a driver and supplier of ICT consumables. The Government of Botswana is the largest consumer of ICT resources as well as the largest employer in the country. The private sector is served by multi-national corporations and several SMEs. By 2004, the annual ICT expenditure of the country had reached a one billion pula mark (approximately £83 million) which indicates a substantial amount of investment for a developing country (NICT Policy, 2007; Maitlamo, 2004) such as Botswana.

Since the advent of mobile devices several years ago, the number of subscriptions exceeds the population of Botswana which is approximately 1.7 million. Figure 1.2.3b from the Botswana Telecommunications Authority shows some statistics of the number of fixed line as compared to mobile phone subscribers between the years 2008 to 2009.

Figure 1.2.3b Botswana Telecommunications Authority, Facts & Figures, Annual Report 2008 and 2009

		March 2006	March 2007	March 2008	March 2009
Number of Subscribers	Mobile	823 070	1 151 761	1 485 791	1 874 101
	Fixed	132 034	136 946	142 282	144 195
	Total	955 104	1 288 707	1 628 073	2 018 296

Thus, although the potential outlook of Botswana can be summarised to be positive, ICT adoption has been at the elementary stage as noted by the authors four years after the National ICT policy report (Iyanda & Ojo, 2008). There are several ICT projects that were established as follow-up to the Maitlamo recommendations (NICT Policy, 2007; Maitlamo, 2004). Amongst these is the e-government project that has been designed to assist the delivery of services to business organisations and individual citizens (Botswana National E-government

Strategy, 2011). A government website exists to spearhead this initiative and a working strategy has been formulated for the period 2011-2016. Most government ministries and departments can be reached through the government website and there is provision for applying for various services. However, there are still challenges in the current delivery of e-government services because most services can still be categorised at the 'cataloguing level' according to Layne and Lee's (2001) classification. The ability to interact and exchange information through the government website is still very minimal as can be evidenced from the latest global IT report (GITR, 2012).

1.2.3.3 The Manufacturing Industry

Botswana has a small manufacturing industry owing to the heavy dependence on South African products. However, the industry is one of the fastest growing sectors in the country and it has been earmarked by the government to assist in the diversification of the economy (Central Statistics Office, 2010b; NICT Policy, 2007; IMF, 2007). In 2009, the manufacturing industry contributed 4% of Botswana's GDP although it employs more labour than the mining industry (Central Statistics Office, 2010b). In this study, the industry is composed of organisations that manufacture foam products, bricks and concrete, and truck covers. Further details about these organisations are provided in chapters four and five.

1.3 Scope of the Study

The scope of this study involves the adoption and utilisation of ICT to enable the buying and selling of commodities and the exchange of information that brings business value to SMEs in Botswana. Thus, any electronic transaction that involves the Internet and e-mail, with or without the web, does constitute e-commerce in this study. Other than using personal computers for business transactions, participants in e-commerce may employ various other devices and ICT applications (Ngai & Wat, 2002) that are mobile, thus encompassing mobile commerce. Although most e-commerce transactions usually revolve around the website, other transactions may be generated by an individual or corporate client through other media such as social networking sites, blogs, and other platforms, from any location on the globe.

The scope of e-commerce in this study extends the description given by Jain & Jain (2011) in the Indian context which ‘consists of transactions for which Internet acts as a medium for contracting or making payment or for consuming the service/product by the end user.’ Furthermore, they state that three alternate combinations of these activities include:

1. paying online and consuming online,
2. paying offline but consuming online, and
3. contracting and paying online but consuming offline.

This study incorporates the use of email and the Web as a means of enhancing business communication through features such as marketing, ordering or payment processes. Thus emphasis is placed on the means of achieving business value through e-commerce than the technology that facilitates the process, although in some cases it becomes useful to explain the ICT that facilitates e-commerce to be able to classify the type of e-commerce being used, such as mobile commerce or another type.

The next section presents the research questions and objectives of this study.

1.4 The Research Questions and Objectives

The main objective of this study is to explain contextual factors affecting SME e-commerce adoption in a developing country context. The first research question relates to the nature and characteristic of the SME e-commerce environment in Botswana. This is stated as follows:

Research Question 1 (RQ1)

What is the nature and characteristic of the SME e-commerce environment?

To answer RQ1, the following objectives were pursued:

- To explain the nature and business characteristics of Botswana SMEs
- To explain the extent of ICT and Internet utilisation in Botswana SMEs
- To explain the development of e-commerce adoption in Botswana SMEs.

Research Question 2 (RQ2)

Cloete et al (2002) found that several factors affect e-commerce adoption in SMEs which they claim are as a result of the characteristics of the organisation, the context in which the firm is in, and more importantly, the managers or owner's perception and acceptance of e-commerce. This study aims to understand the factors that affect a particular manager's pre-dispositions for e-commerce engagement. Thus social, political and economic factors are particularly useful to provide the detail of an organisation's involvement. The second research question is stated as follows:

What factors affect e-commerce adoption in Botswana SMEs?

To answer RQ2, the following objectives were pursued:

- To explain the key challenges affecting adoption or non-adoption of e-commerce in selected SMEs in Botswana.
- To explain the drivers and motivating factors in using e-commerce website technology in Botswana SMEs.

Research Question 3 (RQ3)

How do the factors interact to determine the extent of e-commerce adoption in SMEs?

The following research objectives were pursued to answer RQ3.

- To explain the interaction of factors in determining the extent of e-commerce adoption in Botswana SMEs.

Research Question 4 (RQ4)

The fourth research question is a summation of all answers collected from RQ1 to RQ3.

What strategies must be put in place to improve e-commerce adoption practices in Botswana SMEs?

In order to answer this research question, the researcher will draw strategies from the interaction of the answers from the three research questions outlined above.

The conceptual framework in the next section will elaborate the path taken to answer the above research questions.

1.5 The Conceptual Framework

A conceptual framework explains either graphically, or narratively, the main things to be studied, taking into consideration the main factors, constructs or variables, and the presumed relationships among them (Miles & Huberman, 1994, p. 18). This study draws from similar studies in SMEs conducted by Caldeira & Ward (2003) who employed five stages to understand the successful adoption of IS/IT in Portuguese manufacturing industries. The conceptual framework, as shown in Figure 1.5, is thus outlined as follows:

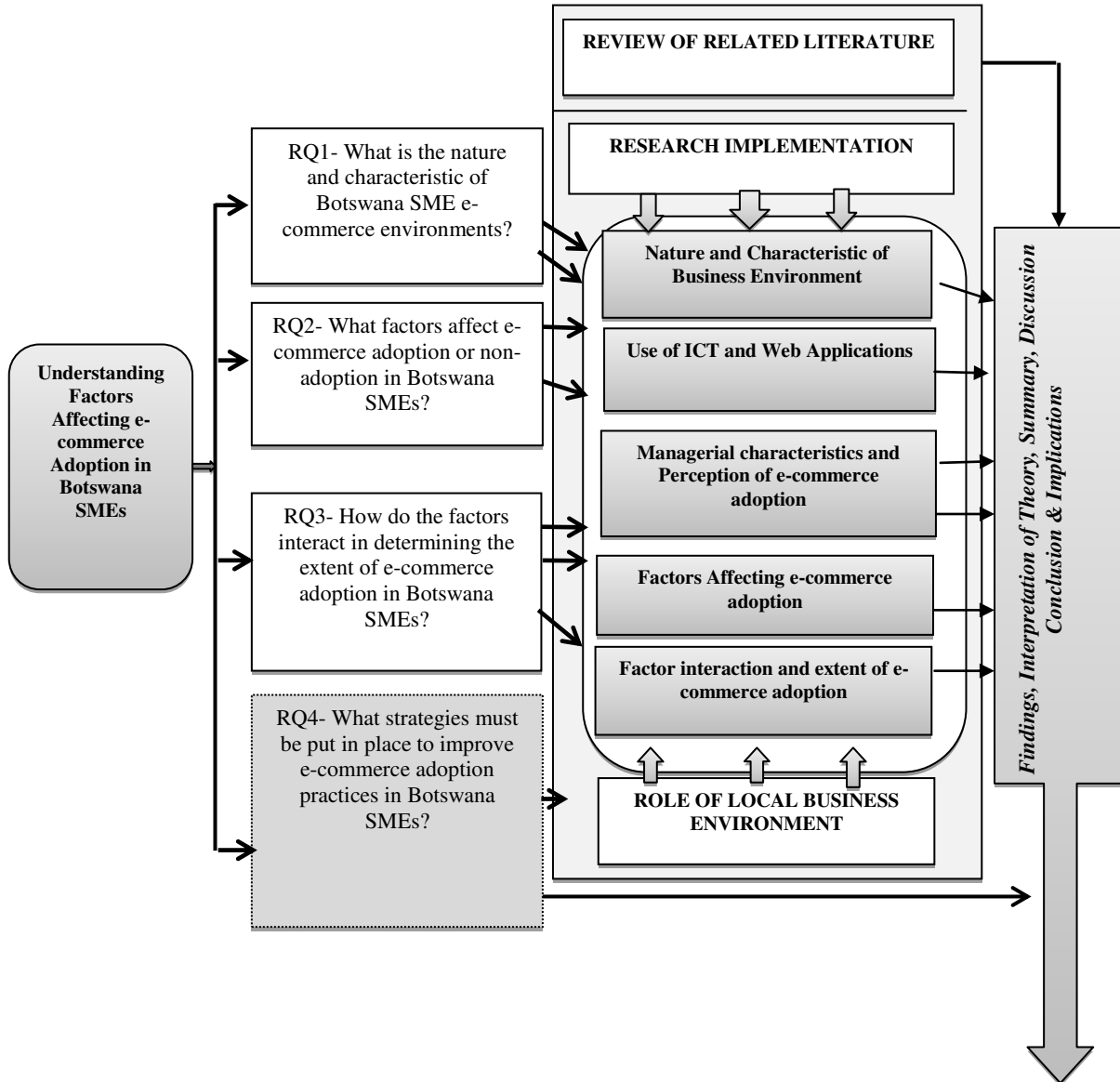
1. The review of related literature on factors affecting e-commerce adoption in SMEs has been undertaken in Chapter 2 to identify potential factors in developed and developing country context. This is followed by a review of the research paradigms and their suitability for this study in Chapter 3.
2. The next stage involves the empirical undertaking of the study that takes cognisance of the researcher's background and beliefs, and other ethical considerations. The research implementation was thus carried out in nine selected SMEs in Botswana. The reasons for the justification of the number of cases have been explained in section 4.1.4.
3. Based on the review of literature in Chapter 2, and the research questions, a conceptual framework was developed to capture six broad categories that aimed to answer specific aspects of the research questions. These are stated as follows:
 - The nature and characteristic of ICT and e-commerce in the SME,
 - The owner/manager characteristics and their perception of e-commerce,
 - The use of ICT and web-based applications,
 - Factors that affect e-commerce adoption in SMEs,
 - How the factors interact to determine the extent of e-commerce adoption, and
 - The role of the local business environment.

The theoretical foundations of the above six categories are detailed in section 3.6.

4. Cross-case analysis of the research findings is undertaken in Chapter 6, and a synthesis of other issues identified from the literature is also presented.

- The final stage is the presentation of the research summary, findings, research implications and conclusion of the study.

Figure 1.5: Conceptual Framework



The next section is the structure of the thesis, which describes how the thesis has been organised.

1.6 Structure of the Thesis

This section provides a snapshot of the chapters and sections that are covered in this thesis. Each chapter begins with a short introduction that highlights the areas that will be covered in various sections of the chapter. A summary and conclusion is provided at the end of each chapter to focus the reader on what issues have been covered and also guide the reader on the subsequent chapters.

Chapter 1 *Introduction and Rationale*: This chapter provides the introduction to the research and the problem area. It introduces the reader to the research context by discussing pertinent issues regarding SMEs and e-commerce adoption in the global world as well as in developing countries. The chapter also provides a background on the development of small and medium enterprises in Botswana in relation to ICT and e-commerce, and also introduces Botswana's landscape, the e-readiness and e-commerce environment, and the sectors of ICT, tourism and manufacturing. The scope of the study is then briefly outlined, followed by the research questions and objectives. A section on the conceptual framework, which outlines how the research questions were answered in the course of the thesis, is introduced. The 'structure of the Thesis' is the last section of this chapter, which gives details of the contents of each chapter.

Chapter 2 *Literature Review*: This chapter sets out to review related literature on e-commerce adoption and non-adoption in SMEs. Picking up from the first chapter that defined the research questions and objectives, the first sub-section in chapter 2 provides a brief history of e-commerce and also lays the foundation for the classification of SMEs, the potential benefits of engaging in e-commerce, and the SMEs readiness for undertaking e-commerce initiatives. A brief discussion of globalisation factors is made, and its impact on SME e-commerce adoption, followed by a review of the digital divide phenomenon. These discussions assist in bringing a focus on the characteristics of the SME e-commerce environment. The chapter then reviews factors that affect e-commerce adoption in SMEs, and later discusses aspects of e-commerce development such as the stages of growth models, website adoption and functionality, and the Web 2.0 applications. Later, the discussion shifts to e-commerce

adoption theories and models that have been used to analyse SME e-commerce adoption in the past. The following are discussed: the Theory of Planned Behaviour (TPB), the Technology Acceptance Model (TAM), the Technology-Organisation-Environment (TOE) framework, the Perceived E-readiness Model (PERM), the Diffusion of Innovation Theory (DIT), and the Resource Based Theory (RBT) combined with Contextualism. This is followed by a summary and conclusion to end the chapter.

Chapter 3 *Research Paradigms and Methodology*: This chapter introduces philosophical issues relating to research in information systems. The positivist, interpretive and critical paradigms are reviewed in the general sense and later applied in the area of e-commerce adoption in SMEs. The next section deliberates on the consideration of the research paradigm that was selected for this study. Based on various considerations from the research questions and the review of the literature, the interpretive paradigm emerges as most suitable to undertake in-depth studies in e-commerce adoption in SMEs. Next, considerations are made of a suitable research methodology from amongst seven methodological approaches such as; design and creation, experiments, surveys, ethnographies, action research, grounded theory, and case studies. The case study methodology is chosen as the most suitable as it provides a multi-pronged, naturalistic method of responding to the research questions. The next section considers the data characteristics that would be used in answering the research questions. Data collection techniques are discussed that would best suit the in-depth interpretive study. A diagrammatic sketch of the conceptual framework is provided as a guide on how the research was undertaken. The chapter ends with a summary and conclusion.

Chapter 4 *Research Implementation*: This chapter provides details of the research methodology in action, as developed from Chapter 3. The chapter first provides research planning issues, and then explores the foundation of undertaking this study by providing the researcher's background and their role in this study. The chapter later provides some explanation of the data collection process, detailing the contexts of the sampled SMEs and how the interview process took place. An introductory preview of the SMEs and how they were selected is given. Other data collection procedures that are employed are explained such

as: documents and web analysis; direct observation, telephone interviews, and analysis of the local business environment. The next section explains how data analysis was achieved, by mainly utilising Miles and Huberman's (1994) approach, and a manual analytical process of making comparisons and reflections on meanings in a hermeneutic fashion. The following section deliberates on the principles for evaluating and conducting interpretive studies and how they were applied in this study. The contribution to knowledge and considerations for ethical issues are also discussed as critical aspects of interpretive research. The next section discusses the methodological limitations that were encountered during the data collection process and the measures that were taken to overcome them. The summary and conclusion, ends this chapter.

Chapter 5 *Presentation of Case Findings*: This chapter sets out to provide the contextual view of e-commerce in nine SMEs based on the interactions between the researcher and the managers or owners of the firms. This is presented based on the conceptual framework which sought to answer the research questions based on six dimensions of analysis. Firstly, *the nature and business characteristic*, is important to provide a foundation of resources from the SMEs nature and business characteristics. The second dimension relates to the *use of ICT and Web Applications*, which gives more information relating to resources such as e-mail, Internet and website applications in each of the SMEs. The third dimension is concerned with *managerial characteristics and perception of e-commerce adoption*, which looks at the role played by SME managers and owners to influence e-commerce adoption decisions in their organisations. The fourth dimension deals with *factors that affect e-commerce adoption or non-adoption*, and the fifth dimension is focused on how *factors* interact to determine the level of e-commerce adoption. The role of the local business environment and its impact on the SMEs is discussed as a component from the external context of the firm. The next section interprets the case findings in terms of e-commerce adoption theories. The last section for each of the SMEs is the summary of findings. The chapter ends with an overall summary.

Chapter 6 *Discussion of Findings*: This chapter discusses the findings of the research. Firstly, a summary of findings for each case are presented. This is followed by a discussion on the

nature and characteristic of the business environment. This is done by integrating the findings from each of the SMEs through cross-case analysis and the literature review. The chapter discusses several factors, their manner of impact and how they emerge in each of the selected SMEs. The interaction of factors is discussed and how they influence the level of e-commerce adoption in the selected SMEs. Website development and applications in the SMEs is discussed to show the extent of e-commerce adoption. Aspects of non-adoption in the SMEs are also discussed. The chapter then discusses the national e-readiness issues and the role of governments in assisting SME e-commerce development. Furthermore, the chapter compares e-readiness current data (for GITR, 2012) for Botswana and the UK, and Botswana and Rwanda. These discussions then culminate into reviewing the role of government, particularly the government of Botswana in facilitating e-commerce adoption in SMEs. The last section is a summary and conclusion of the whole chapter.

Chapter 7 Conclusions: This is the last chapter in the thesis. It provides a summary of the major research findings based on the research questions. A section on the research contribution is provided reflecting on aspects of research and practice. A critique is also offered regarding the research contribution and the theoretical approach. Some ethical considerations that were undertaken are discussed, including the data collection instruments. The chapter also discusses the set of principles for conducting and evaluating interpretive IS research based on Klein & Myers (1999), and specifically applies these to the research undertaking in this study. A discussion on the research implications is presented, focusing on research, practice, and recommendations for further studies. The last section of this chapter is the final conclusion of the thesis.

References to all articles used in the study are provided at the end of the Thesis. An Appendix section provides a sample of interview questions, ethical instruments used during the implementation of the research, and information relating to some outputs of the study such as the government of Botswana research permit, and the recorded interviews.

Chapter 2 Literature Review

2.0 Introduction

The previous chapter introduced the problem statement domain, the research context and the research questions that this study attempts to address. This chapter reviews related literature on e-commerce adoption in small and medium enterprises. The focus of this review will be guided by the research questions outlined in the previous chapter. The chapter begins with a brief history of e-commerce, discusses potential benefits of e-commerce for SMEs, and reviews the issue of globalisation and the digital divide, and how these affect e-commerce adoption in developing country SMEs. The next major section is a review of previous e-commerce adoption factors in SMEs. The section that follows reviews some aspects of e-commerce development in organisations such as stages of growth models, website adoption and functionality, and some issues on Web 2.0 applications. The theoretical foundation reviews previous theories and frameworks of e-commerce adoption such as; TPB, TAM, the TOE framework, PERM, DIT, and RBT combined with Contextualism. The last section is the summary and conclusion.

2.1 E-commerce History and Its Adoption in SMEs-the Global Context

2.1.1 A Brief History of E-commerce

The origin of e-commerce predates the Internet. Early development of e-commerce began in the early 1960s, although most applications associated with innovations surfaced around 1970s in form of electronic funds transfer (EFT) (Turban, King, Lee, & Viehland, 2004). Later, another innovation was introduced, known as Electronic Data Interchange (EDI), which allowed business transactions such as purchase orders or invoices to be passed electronically from one organisation to another using standard procedures and documents (Turban et al., 2004; Papazoglou & Ribbers, 2006).

The Internet, a network of computer networks, began in 1969 by the US government to facilitate academic and scientific research (Senn, 2004, p.86). The rapid evolution of the

Internet and its graphical component, the World Wide Web (Senn, 2004, p.86) in the 1990s and thereafter (Hauben, 2004), enabled organisations to share and exchange information because it was more affordable than the previous medium of EDI (Turban et al., 2004).

In year 2000, a dot.com crash was experienced whereby several US internet-based businesses collapsed (Teo & Ranganathan, 2004). Since then, there has been hype amongst organisations, governments and practitioners, on finding the best ways to employ ICT with minimum loss and failure of systems. Over the years, the number of Internet users has increased tremendously (Senn, 2004, p.386) thereby facilitating the exchange of goods and services amongst businesses (known as B2B e-commerce), and between organisations and individual consumers (B2C e-commerce). However, the growth of e-commerce has been seen to be slower than that anticipated earlier with B2B becoming more popular than B2C (Humphrey et al., 2003; Gibbs, Kraemer, & Dedrick, 2003).

The use of e-commerce has been very popular in the corporate world with large firms of developed country regions reaping benefits whilst its development in small and medium-sized firms has been slow (MacGregor & Vrazalic, 2004). This study focuses on small and medium-sized e-commerce adoption issues in developing country contexts as a follow-up to calls for further studies due to inadequate representation in literature (Kapurubandara, 2009; Molla & Licker, 2005b).

The next section reviews literature on the potential benefits of e-commerce adoption.

2.1.2 Potential Benefits of E-commerce to SMEs

The benefits of e-commerce for SMEs have been a concern for governments and researchers alike due to the significance of this sector to their national economies (OECD, 2004; Van Akkeren & Cavaye, 1999). Senn (2004, p.387) outlines some of the benefits for engaging in e-commerce for organisations as well as individuals, as follows:

1. Geographical reach; there is no barrier for participants as they are able to reach any geographical location on the globe through communication networks.

2. Speed; the interaction between the participants of e-commerce happens within a short span of time.
3. Productivity; due to the fast speed of Internet transactions, participants of e-commerce can gain a lot of time that they can devote to other activities. This means being able to do more work than they actually anticipated, resulting in higher output.
4. Information sharing; any form of information; that is text, audio, video, graphics, or animation can be transferred to all users that are connected to the network.
5. New features; the ability to add new features to the products and services, is another benefit for e-commerce users.
6. Lower costs; the cost of business transaction is cheaper than in traditional methods due to the nature of the Internet. Costs are lower also because producers can communicate directly with buyers, removing any middle men.
7. Competitive Advantage; It is argued that those companies that develop and implement an effective e-commerce strategy have business advantages over others in their industry that cannot offer similar products, services, or operating capabilities.

The actual uptake and realisation of benefits in e-commerce adoption has been in large corporations especially in developed nations (Eriksson et al., 2008; Martinsons, 2008). Research studies have noted that whilst some large firms have benefited greatly in e-commerce adoption due to the wide resources at their disposal (Kartiwi & MacGregor, 2007; Thatcher, Foster & Zhu, 2006), SMEs in developing countries lack a number of resources and competencies and the political and business environment in their countries provides little assistance to boost e-commerce adoption (OECD, 2004).

The next discussion reviews the preparedness of SMEs to participate in e-commerce.

2.1.3 E-commerce Readiness for SMEs

In order to do e-commerce, an SME needs to have the necessary ICT infrastructure such as a personal computer, Laptop, Smartphone, and any similar device, and also be connected to Internet or other communications network. An essential element would be power to run any of this electronic equipment, which is easily available in developed nations but may not be so

for many SMEs especially in rural areas of the developing world. A formidable amount of e-commerce in the global SMEs is done through organisational websites (Eriksson & Naldi, 2008; Karakaya & Shea, 2008; Drew, 2003; Uzoka et al., 2007; Humphrey et al., 2003; Molla and Licker, 2005b; Rao et al., 2003; UNCTAD, 2001) as depicted from previous studies particularly in developed countries. Some forms of e-commerce activities are accomplished through newer ICTs such as cloud computing; mobile commerce applications and social networking services (Scupola, 2010; Constantinides, 2010).

In a comparative study among SMEs in the USA, Spain, Portugal and Poland, Wielicki & Arendt (2010) found that a nation's ICT readiness greatly assists its SMEs to apply more knowledge-based ICT in their business. This may also greatly influence the e-commerce readiness of individual SMEs in their countries. Based on the global networked readiness rankings (GITR, 2012), most developing countries including Botswana have low networked readiness status, which might not adequately motivate their SMEs for e-commerce adoption. This study therefore assesses the e-commerce readiness and adoption prospects of SMEs in a holistic manner.

The next discussion shifts to globalisation issues related to SME e-commerce adoption.

2.1.4 Globalisation and Its Impact on SME E-commerce Adoption

Globalisation can be described as the 'increasing interconnectedness of the world through flows of information, capital, and people facilitated by trade and political openness as well as information technology' (Gibbs et al., 2003). Moreover, it has been noted that technology is both driven by and a driver of globalisation as these twin forces continually act on each other (Bradley et al., 1993 cited in Kraemer, Gibbs, & Dedrick, 2002). Globalisation and the dynamic developments in ICT, especially the Internet and other computer mediated networks have been cited as some of the drivers of e-commerce adoption (Gibbs et al., 2003; Kraemer, Gibbs, & Dedrick, 2005). These drivers have impacted on SMEs differently depending on the nature and characteristics of the firm and depending on the geographical location of the organisation. According to Gibbs et al., (2003), global e-commerce adoption has been leading with B2B, whereas B2C has been more of a local phenomenon. However, the findings by

Gibbs et al., (2003) may vary somewhat in different contexts of the world, especially in parts of Southern Africa where local consumers lack e-commerce infrastructure and other necessary resources.

Previous studies posit that globalisation provides opportunities as well as limitations for SMEs (Kraemer et al., 2005; Narula, 2004; Tiessen, Wright, & Turner, 2001). Some of the opportunities suggested by Kraemer et al., (2005) include 'access to new markets that were previously closed due to cost, regulation, or indirect barriers; the ability to tap resources such as labour, capital, and knowledge on a worldwide basis; and the opportunity to participate in global production networks that have become prevalent in many industries.' They further add that challenges come from foreign competitors entering firms' domestic markets, and from domestic competitors reducing their costs through global sourcing, moving production offshore or gaining economies of scale by expanding into new markets. In order to compete in global markets, SMEs face serious challenges as these firms are less enabled in e-commerce competence and capacity, scope and development drive (Hultman & Eriksson, 2008). Kraemer et al., (2005) further state that globalisation challenges firms to become more streamlined or focused and efficient while simultaneously extending their geographic borders to new markets.

Several studies have been undertaken to assess the impact of globalisation, e-commerce and SMEs. One of the early studies to assess the impact of globalisation and e-business on SMEs in Italy was done by Piscitello & Sgobbi (2004). The researchers undertook twelve case studies in a textile district of Prato with the purpose of determining the challenges of globalisation among the SMEs. Their findings suggest that only a few firms in the district were actively pursuing the full range of opportunities provided by e-business.

In a comparative study on barriers of e-commerce adoption between a developed country (Sweden) and a developing country context of Indonesia, Kartiwi & MacGregor (2007) found some differences in the groupings and priorities of barriers between the two contexts. Their key findings suggest that while Swedish respondents were more concerned with technical

issues, the Indonesian respondents were more concerned with organisational barriers. With regard to accounting for the number of barriers in e-commerce adoption, the researchers claim through their study that barriers to e-commerce adoption can be explained to be as a result of one of the three factors, as follows:

1. E-commerce is either too difficult,
2. Unsuitable to the business, or
3. Time and choice are a problem.

Therefore they recommend that even though previous studies have found varying sets of factors that inhibit e-commerce adoption, the three summed factors can be used to explain and predict barriers to e-commerce adoption in SMEs in developed and developing country contexts. For SMEs in developing countries, the perception that 'e-commerce is difficult' is usually found among SME managers who have little knowledge or are unable to appreciate the benefits of e-commerce due to lack of various resources. In closed value chain systems such as the garment industry reported in South Africa (Moodley & Morris, 2004), the reason for 'e-commerce to be unsuitable' may be applicable.

In the developing country context of Nigeria, Lal (2007) investigated the factors that affected the degree of adoption of new technologies in Nigerian SMEs with a globalisation perspective. Lal found that firm-level variables such as financial capacity and technological absorptive capacity influenced the intensity of the adoption of ICTs. Furthermore, the researcher posits that globalisation of the Nigerian economy also influenced the adoption of new technologies in SMEs. Therefore researchers all agree that SMEs need support from various stakeholders such as governments, multi-national corporations, and others, in order to improve their capacities and competencies for responding to globalisation challenges (Lal, 2007; Piscitello & Sgobbi, 2004; Tiessen et al., 2001).

In order to improve the position of SME e-commerce in the face of globalisation challenges, several studies have suggested a number of strategies, such as:

1. Developing resilience to re-focus e-commerce adoption strategy (Gunasekaran, Rai, & Griffin, 2011),

2. Creating various forms of collaboration amongst the SMEs (Mesquita & Lazzarini, 2008),
3. Improving training and education among SMEs,
4. Facilitating the formation of networks and clusters (Piscitello & Sgobbi, 2004), among many others.

2.1.5 The Digital Divide and E-commerce Adoption in SMEs

The digital divide is a term that came to be popular in the 1990's, describing the gap in ICT knowledge and acquisition between the developed rich countries and the poor developing countries. The discussion in this study will draw from the Australian definition given by Standing, Sims & Stockdale (2004). They describe 'digital divide' as the gap between the level of sophistication in IT and e-business adoption and usage in rural compared with urban areas, and small and medium enterprises compared with large companies. With the rapid diffusion of Internet and other communication networks influencing e-commerce, researchers have been expecting a catch-up phenomenon among SMEs due to easy access and cost of Internet technology for e-commerce (Bell & Loane, 2010; Standing et al., 2004). However, the practice on the ground has not shown much appreciation among SMEs, both in developed (Chibelushi & Costello, 2009; Wilson et al., 2008) and developing countries (Olatokun & Kebonye, 2010), even though SMEs in developed countries tend to perform better due to their well-equipped e-readiness environment (Wielicki & Arendt, 2010).

Researchers have anticipated that the high diffusion of mobile telephony in most developing countries especially in Africa can narrow the gap between large and small business e-commerce adoption (Heeks, Jagun & Whalley, 2009). In a study among SMEs in Ghana, Frempong (2009) finds that SMEs are actively engaged in various forms of business using mobile telephony. Donner & Escobari (2010) provide an account of how SMEs use mobile phones to alter their internal business processes and extend business relationships beyond the traditional landline use. Despite the positive trends to e-commerce penetration through mobile telephone, the digital divide may still persist in form of other institutional barriers such as trade restrictions imposed by rich countries and powerful multinational corporations on poor developing countries. Some researchers express pessimism that SMEs may not be able to

respond to global and local demand for e-commerce because they are already resource-constrained (Winch & Bianchi, 2006).

2.2 Reviewing E-commerce Adoption Factors in SMEs

E-commerce adoption factors can be described as those that motivate or inhibit the adoption of e-commerce (Cragg and King, 1993). This review adopts a four dimension framework for reviewing the factors affecting e-commerce adoption and use in SMEs that has been slightly modified from the Tornatzky and Fleischer (1990) model. According to Tornatzky and Fleischer, the process by which a firm adopts and implements technological innovations is influenced by the technological context, the organisational context, and the environmental context. Thus, the factors will be based on the organisational, environmental, technological, and individual dimensions.

2.2.1 Individual Factors

Issues surrounding individual persons are an important aspect of the adoption of ICT and e-commerce in any organisation. In SMEs, the position of individuals matters a lot as they are supposed to be generalist (Drew, 2003) in performing their functions. Most SME personnel are either in key managerial positions or are classified in a unit or function that performs a certain task or numerous tasks. Most SMEs are run by a manager who is usually an owner of the organisation (Demirbas, Hussain, & Matlay, 2011). The following sub-sections describe owner/manager and other individual aspects affecting e-commerce adoption.

2.2.1.1 Owner/Manager Characteristics

Literature continues to recognize the significance of the owner or manager in the adoption and use of ICT and e-commerce amongst SMEs (Caldeira and Ward, 2002; Charterjee et al., 2002; Cragg & King, 1993; Thong, 1999; Looi, 2005; Stockdale & Standing, 2006; Bharati and Chaudhury, 2006). Owner/manager factors relate to executive decisions that the SME owner /manager must make, what financial commitments to take relating to the overall direction of the firm, acquisition of new e-commerce infrastructure, whether the SME must consider e-commerce adoption or not, their appreciation or non-appreciation of ICT and new technological developments, and the like. This could be expected since the owner and

manager is the full driver of all business undertakings in the organisation (Riemenschneider et al., 2003). The challenge comes when the manager is reluctant to push for e-commerce developments. A vibrant SME owner and/or manager usually transform the SME objectives to grow the organisation further (Karakaya and Shea, 2008). Where the owner or manager of the small enterprise slumbers and does not appreciate the value of ICT innovation, there is stifled growth in the firm. Extant studies have further established that a combination of owner/manager perspectives and attitudes towards ICT adoption and use, play an important role in the development of internal ICT competencies, and provide an important contribution to the development of an environment that enables ICT adoption and use (Wilson et al., 2008; Caldeira and Ward, 2002; Cloete et al., 2002).

2.2.1.2 Level of Education

It is also necessary that the owner/manager and other key personnel in SMEs attain an acceptable *level of education* in order to drive e-commerce activities in their firm. Research studies have found that one of the criteria for successful e-commerce adoption amongst SMEs is the level of education (Thong, 1999; Sarosa & Zowghi, 2003). A basic level of education such as General Certificate of Education (GCE) or its international equivalent is critical as it allows easy communication and appreciation of business terms in global business. Most SME owner/managers, especially in developing countries, are unable to communicate in international languages that give access to global markets. A general acceptable level of education would be a high school ordinary level certification, although higher business qualifications are better.

2.2.1.3 Level of ICT and E-commerce Knowledge

Another individual factor is the level of ICT and e-commerce knowledge. It is expected that an acceptable level of ICT and e-commerce knowledge of the owner or key manager, and other key decision making personnel can assist the SME to adopt appropriate e-commerce activities in their business (Teo & Ranganathan, 2004; Meso, Musa & Mbarika, 2005; Looi, 2005). A higher level of appreciation of ICT and e-commerce principles by the owner or key manager will directly influence considerations for further e-commerce uptake in the business. Due to the availability of resources and ease of entry into the business sector, SMEs in

developed countries have a better knowledge of ICT than those in developing countries (Eriksson et al., 2008). In a comparative study of how SMEs in the US and Canada manage information technology (IT), Montazemi (2006) found that SMEs in US make better use of ICT and are better guided in managerial decisions-making. Karakaya and Shea (2008) depicted a high satisfaction of e-commerce initiatives in US companies which has resulted in expected levels of e-commerce success. In most developing countries, a low literacy level amongst SMEs is prevalent (Mollar and Licker, 2005a). This makes it difficult particularly for owner/managers to appreciate and comprehend ICT and e-commerce opportunities on the market. The inability and lack of access to information related to ICT and general management skills was cited as one of the factors affecting SMEs in the appreciation of ICT and e-commerce in Botswana (Duncombe and Heeks, 1999; 2002).

Some SME owner/managers lack the zeal and creativity to act beyond their environment (MacGregor, 2004; Lawson, Alcock, Cooper, & Burgess, 2003; Shemi and Magembe, 2002). In most cases, especially in developing countries, SME managers would do just the barest minimum to make themselves abreast with technology. Many who have complained about the cost of technology for e-commerce set-up have not explored other inexpensive ways of accessing global markets, such as open source software, short message service (SMS) facilities and other new generations of ICT (Scupola, 2010).

Previous studies (Mutula & Van Brakel, 2007; Ssewanyana & Busler, 2007; Forth & Mason, 2006; Cragg & King, 1993) emphasise the importance of 'skilled ICT personnel' within the organisation or from outsourcing firms to assist in deploying and using e-commerce. Wilson et al., (2008) found that skilled ICT personnel were crucial for e-commerce progression in the UK SMEs. They further argue that this factor is more important than financial ability.

2.2.1.4 Social and Cultural issues

Researchers have stated the need to consider social and cultural factors in the adoption of e-commerce in developing country contexts (Avgerou, 2002; Vatanasakdakul et al., 2004). They further argue that social and cultural factors are often disregarded when e-commerce

technology is transported from developed countries to developing countries where it is implemented. This is a key point of view advocated by Avgerou and colleagues.

2.2.2 Organisational Factors

Organisational factors are those that are defined from the nature and characteristic of the firm itself, usually making it unique to the firm. A number of factors have been cited that hinder or motivate e-commerce adoption within the boundary of an organisation. These are discussed in the following sub-sections:

2.2.2.1 Security, Trust, and Privacy Concerns

Issues of trust, security and privacy are amongst the most critical determinants to the success of e-commerce adoption for online consumers (Bharat & Abhijit, 2010; Oreku, Li, Kimeli & Mtenzi, 2009; Lawson et al., 2003; Humphrey et al., 2003). According to Choudhury (2008) cited in Choudhury & Choudhury (2010) security can be described in two categories: protection of transactional detail of the customers and privacy of the personal information of the respondents. Security concerns have allowed partial application of e-commerce where only electronic mails are accepted online without electronic payments (Karanasios & Burgess, 2008; Mukti, 2000). In many developing countries, the Internet and the networking jargon are still being regarded as complex phenomena by many SMEs who may presume them to be predators for their data (Tan et al., 2007).

Some researchers have approached the issue of security, through the term 'trust', a critical attribute that must be incorporated in e-commerce adoption issues (Beatty, Reay, Dick, & Miller, 2011; Kim & Benbasat, 2009; Tang, Hu & Smith, 2008). 'Trust conveys a vast number of meanings, and is deeply dependent upon context' (Beatty et al., 2011). Trust assurances can be provided by an Internet store itself, by customers, or by a third party organisation (Kim & Benbasat, 2009).

Privacy issues related to B2C environments have also appeared in previous studies (Bella, Giustolisi & Riccobene, 2011; Li, 2011). Individuals' information privacy refers to the ability of individual's to personally control information about them (Smith, Milberg & Burke, 1996).

With the proliferation of more online interactions through platforms such as Facebook, Twitter, MySpace, and others, individuals' privacy concerns have become more critical over the years. Bella et al., (2011) posit that there exist two main paradigms to protect the customer's privacy: one relies on the customer's trust that the network will conform to his/her privacy policy, the other one insists on the customer's anonymity.

The absence of an e-commerce regulatory framework is a drawback to SMEs should security be breached during e-commerce transactions. Most developing countries are yet to enact laws for e-commerce governance and any delays on this aspect means that e-commerce initiatives in SMEs are curtailed. Lawson et al., (2003) noted that most SMEs have no financial ability to secure their systems after viral attacks.

2.2.2.2 Financial Ability and Cost Implications

Amongst the challenges that hinder development in e-commerce in SMEs is the issue of finance as it relates to the amount of financial resource that a firm can utilize for setting-up, buying necessary ICT for e-commerce implementation, consultancy fees and training personnel and maintenance of websites and other infrastructure (Mutula & Van Brakel, 2007; Lee et al, 2003; Sarosa & Zowghi, 2003). However, in a UK study by Simpson and Docherty (2004), it was found that cost was not an inhibitor to e-commerce adoption amongst SMEs. In most developing countries, SMEs have little or no financial resources to acquire ICT infrastructure or to venture into e-commerce initiatives (Mutula & Van Brakel, 2007; Cloete et al, 2002; Mukti, 2000).

2.2.2.3 Size of the Organisation

It has been found that the size of the organisation can influence the decision to adopt or not to adopt e-commerce (Thong, 1999; Bharati and Chaudhury, 2006). Larger businesses are known to have plenty of resources at their disposal, especially with supply chain management (SCM) systems (Shore, 2001) that link with suppliers. A small firm will find it very challenging to acquire such a system due to the high cost of set up. In the US context, Bharati and Chaudhury (2006) studied the extent and nature of ICT adoption in SMEs in the Boston area. They found that firm size has a significant impact on what technologies are employed.

Further, they found that simple technologies, including Web and accounting packages, were used widely across all firm sizes, whereas complex technologies such as Customer Relationship Management (CRM) and SCM were minimally employed. Recently, the impact of size has generally been found to be an insignificant influence on e-commerce adoption (Karakaya and Shea, 2008), possibly because the playing field has been levelled with better and easier logistics to deploy e-commerce systems.

2.2.2.4 Perceived benefits of ICT

The perception of benefits to be derived from e-commerce adoption and use is another factor that is cited in literature (Chibelushi and Costello, 2009; Looi, 2005). Most SMEs in developing countries are unaware of what technologies, including e-commerce, can be of benefit to them due to lack of education and sometimes ignorance. They often assert that perceiving the good of the technology before actually using it is rather difficult. Another barrier similar to this is the ‘negative mindset’ regarding the technological/regulatory environment (Ramsey and McCole, 2005).

2.2.2.5 Organisational Culture

Organisational culture has been identified in the literature as a key issue affecting the adoption and use of e-commerce SMEs (Montazemi, 2006; Thatcher et al., 2006; Tan et al., 2007). Hofstede’s (1984, 1993) work has been useful to describe the role of culture in IS/IT adoption research. Some cultural dimensions are described below:

- *Power distance*: The extent to which the members of a society accept that the power in organisations is distributed unequally.
- *Uncertainty avoidance*: The degree to which members of a society feel uncomfortable with uncertainty and ambiguity.
- *Individualism versus collectivism*: The extent to which a person sees herself as an individual rather than part of a group.
- *Masculinity versus femininity*: Preference for achievement, heroism, assertiveness and material success as opposed to feminism which refers to a preference for relationships, caring and quality of life.
- *Time orientation*: The relative importance of the here and now versus the future.

Another dimension defined by Hall and Hall (1990) is as follows:

- *High context versus low context:* The amount of information that surrounds an event, inextricably bound up with the meaning of that event. In high context culture, the information surrounding an event is already in the person, and very little in the coded, explicit, transmitted part of any communication between participants. In low context cultures, the mass of information is vested in the explicit code.

As an African country, Botswana's society can be described to have a low degree of individualism (Boateng, Molla & Heeks., 2009), and as such non-formal ways of communication and social interactions are highly preferable in business undertakings (Duncombe & Heeks, 1999; 2002).

In their study in South African SMEs, Humphrey et al (2003) found that SME managers were more interested in establishing face to face business meetings than web-enabled business discussions. This corroborates earlier studies by Duncombe & Heeks (1999, 2002) who found that SMEs and rural micro-entrepreneurs in Botswana relied on informal, social and local information systems. Besides being neighbours, Botswana and South Africa share a number of notable beliefs and cultures that are generally similar. Botswana culture is generally inclined to femininity through national values such as 'Botho', the essence of caring and being concerned about others in the society. This philosophy of life has to a large extent been carried over to the corporate world to influence business relationships. An excerpt from the University of Botswana Graduate studies' vision statement highlighting this culture states that:

'Botho is a philosophy that promotes the common good of society and includes humanness as an essential element of human growth. In African culture the community always comes first. The individual is born out of and into the community, therefore will always be part of the community. Interdependence, communalism, sensitivity towards others and caring for others are all aspects of Botho' (Botho-Vision 2016, 2012).

Thatcher et al., (2006) found that Taiwanese culture had an influence on e-commerce adoption and that this was further differentiated depending on industry affiliations.

In the Chinese context, Martinsons (2008) describe an e-commerce scenario that is relationship-based, and culturally driven by a Chinese term, called 'guanxi'. Further, the relationship-based e-commerce emphasises personal trust, contextual and informal information, and blurred boundaries between business and government (Martinsons, 2008).

2.2.3 Technological Factors

Technological factors are those that are obtained from the nature and characteristic of the ICT that the SME employs or intends to use for e-commerce adoption (Scupola, 2009). These factors are discussed as follows:

2.2.3.1 Availability and Slow Speed of Internet

In many developing countries, the availability of Internet in SMEs has greatly contributed to the delay in adopting e-commerce (Uzoka et al., 2007; Molla and Licker, 2005a; Magembe and Shemi, 2002). Even though Internet is available, the continued use in SMEs is hampered by lack of electricity especially in rural areas (Oreku et al., 2009; Uzoka et al., 2007). Further, the slow speed of Internet does not motivate or promote e-commerce adoption as well (Oreku et al., 2009; Mutula & Van Brakel, 2007).

2.2.3.2 Complexity of Technology

The complexity of ICT can be considered a key factor affecting e-commerce adoption in SMEs. Some organisations have been sceptical to adopt e-commerce technology because of concerns about data management issues between the old and new ICT applications (Forman, 2005). SMEs whose managers have some technological expertise can understand the role of e-commerce in their firms and proceed to transact if they so wish. The fear of technology may hinder some managers to consider e-commerce developments in their organisations. Jennex and Amoroso (2002) noted that organisations need to develop a strategy for e-business applications for incorporating technological issues.

2.2.3.3 Lack of Payment Facilities

The lack of payment facilities such as credit cards has prevented the completion of e-commerce transactions as reported by Mercer (2005) in Tanzania.

2.2.3.4 Lack of Reliable Power Supply

Another situation affecting e-commerce adoption is the unreliable supply of power or electricity to operate ICT equipment. In Tanzania (Mercer, 2005) and Botswana (Magembe & Shemi, 2002), previous studies found that the lack of power or electricity prevented small businesses especially in rural areas from adoption e-commerce.

2.2.3.5 Language Barrier

Previous studies have pointed out that language barrier deters many people in developing countries from participating in e-commerce (Vatanasakdakul et al., 2004). They further note that ICT and e-commerce applications are developed in the western countries with English as the main language of communication and so it is taken for granted that users in other parts of the world must automatically understand the language, which may not be applicable in other contexts.

2.2.3.6 Lack of Internet Address space

It has been learnt that the current generation of Internet infrastructure is running out of address space due to the multitude of mobile phone use, growing adoption of the internet in developing countries, widespread use of the radio frequency identification (RFID) tags, etc., (Chibelushi and Costello, 2009). They add, citing Bicknell (2007) that this situation will remain so until the next generation internet protocol version 6 (IPv6) is adopted.

2.2.4 Environmental Factors

The external environment of the SME organisation also impacts some challenges to e-commerce adoption. It describes the realm of business engagement of the firm (Scupola, 2009). This describes factors such as government role; business partner affiliation and preferences; nature and characteristic of value chain; logistics and telecommunications infrastructure; economic and political instability; human-rights issues; business culture;

macro-economic policies; natural disasters; floods; and earthquakes. A brief review of each of these follows:

2.2.4.1 Government Support

The role of government in providing various forms of intervention has been cited as a catalyst for the development of e-commerce in SMEs (Southern & Tilley, 2000; Sarosa & Zowghi, 2003; Thatcher et al., 2006; Martinsons, 2008). Government support can come in the form of facilitating policy for SME operations in the country, institutional support for providing financial and technological assistance, improving e-commerce infrastructure, and enacting favourable e-commerce laws (Scupola, 2003). Researchers (Dunt and Harper, 2002; Chan and Al-Hawamdeh, 2002, Martinsons, 2008) noted that developed countries' ability to adopt and use e-commerce and e-business at advanced levels has been greatly enhanced by their government's proactive role in providing the enabling infrastructure for e-commerce to thrive. This is often lacking in developing countries because their governments are usually concerned with issues of poverty and hunger eradication (OECD, 2004). Chan and Al-Hawamdeh (2002) provide an example of the role of government in the development of e-commerce in Singapore where deliberate steps have been taken to improve e-commerce infrastructure by enacting favorable e-commerce laws. Unfavourable government and regional policies stifle creativity among SMEs, threatening the existence of this sector in the economy.

2.2.4.2 Business Partner Affiliation

Another factor that influences the adoption of e-commerce in SMEs is the business partner (Parker and Castleman, 2009) who may be suppliers or customers (Wilson et al., 2008). The presence of a business partner is even more appealing to SMEs in circumstances where there are no trusted alternative partners in an industry. Business partner relationships are usually depicted from the suppliers or customer's perspectives. SMEs will usually want to develop and deepen a business relationship with the aim of establishing a long-lasting business partnership (Castleman, 2004). This idea works well if the business partner recognizes the strategic value and competitive advantage that this can bring to both organisations. Wilson et al. (2008), in a UK SMEs study, found that

customer or supplier demand is a significant factor that will necessitate the adoption of e-commerce. Conversely, this does limit participation of small businesses if their business partner does not value strategic e-commerce innovations or are adversely affected due to other internal and external challenges.

2.2.4.3 The Nature and Characteristic of Value Chain

In the Business to Business market place, social relationships between buyers and sellers can open up room for e-commerce adoption or close opportunities for growth. Previous studies in South Africa have shown that SMEs may not adopt e-commerce due to the peculiar nature and characteristics of certain industries such as the horticultural (Humphrey et al., 2003) and garment industries (Moodley & Morris, 2004). The closed nature of such industries does not necessitate the need to undertake business on the open Internet, as all stakeholders are within a closed market system (Humphrey et al., 2003). Any decision to adopt e-commerce will have to be considered alongside other stakeholder's position in the market system.

2.2.4.4 Economic and Political Instability and Human Rights Issues

Economic and political instability prevents SMEs from freely trading in the country and their regional groupings due to several uncertainties. Related to this is the human rights situation that may hinder SMEs participation in e-commerce.

2.2.4.5 Natural Disasters, Floods & Earth-quakes

The occurrence of natural disasters does hamper development in e-commerce adoption. For example, recent floods, earthquakes and tsunami in 2009 and 2010, in countries such as Brazil, Haiti and Japan, respectively are just a reminder of the serious challenges that may confront SMEs where whole ICT infrastructure, property and lives can completely be swept away.

2.2.4.6 Business Culture

The prevailing business culture in the SME environment has been cited as crucial for the development of e-commerce (Martinsons, 2008; Thong, 1999). This has been found to be different from country to country even amongst developed countries (Scupola, 2009). For example, most SME managers in Southern Africa and Botswana in particular, can be said to

have low uncertainty avoidance and low individualism, meaning that people can easily interact and share ideas with friends or relatives without much consideration of losing individual identity.

2.2.4.7 Macro-Economic Policies

The presence of macro-economic policies in developed economies has been a catalyst for e-commerce growth (Martinsons, 2008; Molla and Licker, 2005a). In their study on the role of institutions in the diffusion of e-commerce, Molla, Taylor, & Licker (2006) found that during the early stages of e-commerce penetration, public and external institutions play 'key roles in creating conducive conditions and in providing the impetus necessary for e-commerce to spread.' In less developed economies, other forms of regulatory policies may have to be pursued to enable e-commerce adoption using various types of technologies to complement efforts made by their governments.

The next section further looks into the factors and their relationship to the level of e-commerce adoption in the firm.

2.2.5 The Interaction of Factors and the Extent of E-commerce Adoption

Despite there being many studies that have deliberated on the drivers and barriers of e-commerce adoption in firms, few have actually advanced to look further into the essence of factors that affect e-commerce adoption and their relationship with the extent of e-commerce adoption in SMEs (Dholakia & Kshetri, 2004; Caldeira & Ward, 2001). Previous studies have shown that e-commerce adoption thrives well when it is supported by a clear and pragmatic business strategy (Thatcher et al., 2006). It is argued that '*the strongest driver of e-commerce is thought to be a business strategy of protecting and extending existing markets, reaching new markets, or gaining advantage over competitors* (Gibbs, Kraemer & Dedrick, 2003).' Such business strategies are usually crafted from a consideration of an organisation's internal resources in consideration with prevailing factors outside the firm. Thong (1999) also found that the attitude of managers and their visionary leadership will significantly influence the degree of ICT adoption. Earlier studies by Iacovou, Benbasat & Dexter (1995) found three factors affecting Electronic Data Interchange (EDI) adoption in small firms. These are:

1. Organisational readiness, which they categorise as financial and technological resources of the firm;
2. External pressures, divided into competitive pressure and imposition by trading partners, and,
3. Perceived advantages of the technology.

This study assumes that SMEs will be affected differently as they embrace e-commerce in their firms and that the impact of factors will be peculiar and unique to the circumstances that prevail in each of the firms. Moreover, the social-technical characteristics of firms experiencing great yield or benefits in e-commerce adoption will be further analysed to draw insight on what factors were significant in these circumstances and how the firms have benefited from the prevailing interaction of factors.

The next section discusses some aspects of e-commerce development in organisations.

2.3 E-commerce Development in Organisations

2.3.1 Stages of Growth Models

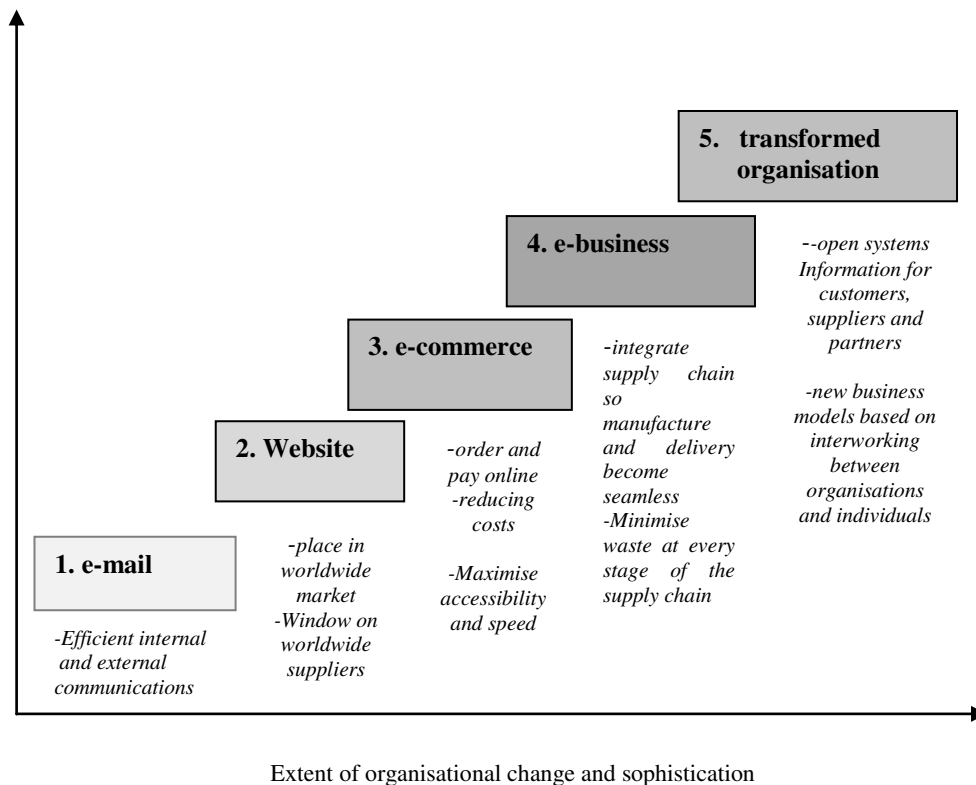
One aspect that relates to understanding factors affecting e-commerce adoption in organisations is the concept of 'stages of growth' or growth models. Previous studies suggested that organisations undergo stages of growth in their adoption of ICT and e-commerce technology (Poon & Swatman, 1999; Martin & Matlay, 2001; Daniel et al., 2002; Daniel, 2003; Rao et al., 2003; Russell & Hoag, 2004; Taylor & Murphy, 2004). The stages of growth have been useful to gauge the motivating or inhibiting factors for e-commerce development in SMEs.

One of the most popular models that was prominent in the UK government around the 1990s is the concept of the Department of Trade and Industry (DTI) adoption ladder (Martin and Matlay, 2001), shown in Figure 2.3.1. It shows how small businesses progress in ICT adoption, in stages as follows:

1. e-mail,

2. website,
3. e-commerce,
4. e-business, and
5. The transformed organisation.

Figure 2.3.1: DTI Adoption ladder UK online (Source: Martin and Matlay, 2001)



The vision of the DTI was that e-business in small firms would progress from one stage to a higher level, in a well-planned, sequential process (Martin & Matlay, 2001). This model faced criticism that it was too simplistic and that its linear progression could not capture the complex nature of small firm activities (Parker & Castleman, 2009).

In a study in UK SMEs, Daniel et al., (2002) found that firms undergo four clusters of adoption that formed a sequential stage from one cluster of adoption to another. The first cluster of innovation were developing their e-commerce services, the second adoption cluster were using email to communicate with customers, suppliers and employees. The third cluster

of adoption were firms operating information-based website services and were developing online ordering facilities (Daniel et al., 2002). The most advanced adopters in their sample were using online ordering and were developing online payment services. The work by Daniel and colleagues has come under scrutiny over the years as it is claimed that it treats e-commerce adoption as a simplistic phenomenon that can be easily assimilated in an organisation (Parker & Castleman, 2009; Alonso-Mendo & Fitzgerald, 2005). Further, their model may be unable to explain overlapping in the stages (Lefebvre et al., 2005) and inability to explain details underlying the lack, rejection or discontinuity of adoption. We can explain the findings by Daniel et al., (2002) in that at the time, ICT was not very advanced in organisations and e-commerce was just taking ground in many SMEs across the world. Thus, there might have been room to discover such behavior amongst e-commerce adopters then. With the dynamic changes in organisations since then, necessitated by diverse changes in ICT, e-commerce adoption in organisations may take dimensions that are unpredictable or even unplanned for.

Lee et al., (2003) distinguish two different types of B2B e-commerce adoption: basic and collaborative B2B e-commerce. Basic B2B e-commerce describes the electronic network simply to automate the exchange of commercial documents whilst the collaborative B2B e-commerce describes B2B networks that are used to create new inter-firm operations with channel partners (Lee et al., 2003). They further claim that firms are unlikely to achieve significant benefits with basic B2B e-commerce but through collaboration enabled by B2B electronic networks. The aspect of collaboration in B2B e-commerce may be suitable to developing country context where SMEs usually form social groupings for business (Donner & Escobari, 2010). Others similarly generalise e-commerce development in organisations to be based on two categories; initial adoption and later institutionalisation stages (Lawson et al., 2003; MacGregor, 2004; Mollar and Licker, 2005a). Such studies have been unable to account for unexpected changes in the development of e-commerce in the organisation and why some SMEs thrive and others do not.

According to Molla and Licker (2005b), developing country organisations are known to progress in e-commerce development based on a six-stage classification which can be stated as follows:

Stage 0: Not connected to the Internet, no e-mail

Stage 1: Connected to the Internet with e-mail but no Web site,

Stage 2: Static Web, that is publishing basic company, information on the Web,

Stage 3: Interactive Web presence, that is, accepting queries, e-mail, and form entry from users,

Stage 4: Transactive Web, that is, online selling and purchasing of products and services such as customer service,

Stage 5: Integrated Web, that is, a Web site integrated with suppliers, customers, and other back-office systems allowing most business transactions to be conducted electronically.

Molla and Licker's classification may also face criticism, similar to Daniel et al.'s (2002) work because of the simplistic way of defining e-commerce adoption that overlooks the complex nature of ICT integration in an organisation (Parker & Castleman, 2009).

Another stage model was introduced by Rao et al (2003), which shows details of each stage, facilitators and barriers at each stage of development. 'A stage is a set of descriptors that characterise the evolutionary nature of e-commerce (Rao et al, 2003).' Their model proposes that e-commerce development takes place in four stages, as follows:

1. Presence; that is characterised by a display of company information and its products or services, lack of integration with internal and external processes, and a one-way communication channel that gives contact details to future business prospectors,
2. Portals; which emphasise introduction of two-way communication, order placing and use of profiles and cookies,
3. Transaction Integration; which is characterised by the features of the previous two stages and integration of financial transactions, and
4. Enterprise Integration; which is characterised by complete integration of business processes with no distinguishable features between old and new business models.

Further, at each of these stages, the authors add that there are facilitators and barriers that are unique to each of the stages (Rao et al., 2003). The authors note that although development stages are displayed in a sequential fashion, the model does not propose that a company should complete one stage before reaching another stage. The model has been useful to provide a classification for organisations and also to assist in determining the barriers and facilitators for e-commerce development (Rao et al., 2003). A key concern is that Rao et al., (2003) do not consider certain circumstances that affect SMEs in developing countries such as failure in the adoption of ICTs.

The described model may be contested in that it takes the development of e-commerce as easily discernible by managers and may not account for the diversity in nature that is exhibited by SMEs (Parker & Castleman, 2009). The possibility of overlap in some features of the stages can be noted where some features of Transaction or Enterprise integration may emerge earlier than the staging concept prescribes. The authors note that although development stages are displayed in a sequential fashion, the model does not propose that a company should complete one stage before reaching another stage. This study extends the application of ‘barriers’ and ‘facilitators’ at each stage of the adoption, although it replaces facilitators with ‘drivers’ in the subsequent chapters of this study.

Lefebvre et al., (2005) studied Canadian manufacturing SMEs aiming to capture the gradual unfolding of B2B e-commerce adoption. The authors employed three separate but complementary phases as follows:

1. A pilot study to identify and validate metrics for B2B e-commerce adoption;
2. Second, an e-survey to gain an in-depth understanding of the gradual unfolding of the B2B e-commerce adoption and its related benefits among manufacturing SMEs; and
3. A multiple case study to further validate the e-commerce adoption trajectories they observed and their underlying dynamics.

Their findings suggest logical evolutionary paths to the penetration of B2B e-commerce in SMEs. The cumulative and self-reinforcing nature of both e-commerce initiatives and the benefits derived from there, points to the existence of e-commerce adoption trajectories

(Lefebvre et al., 2005). They describe e-commerce to be 'path-dependent', which they define to be a dynamically self-reinforcing behaviour, whether this behaviour is triggered by historical accidents or rational decisions. The study faces criticisms in that it does not expect e-commerce initiatives to discontinue due to a number of unforeseen circumstances. Another concern with Lefebvre et al.'s work is the idea of tracing the logical evolutionary paths which may not apply in developing country contexts due to lack of enabling factors of e-commerce adoption.

In an effort to improve the applicability of staged models, Alonso-Mendo and Fitzgerald (2005) propose that examining the evolution of web sites over time gives insights into actual evolving strategies and motivations behind internet investments. The researchers propose an alternative multidimensional framework that combines three different dimensions of organisational change (process, content, and drivers). The authors manage to introduce a new dimension for understanding the evolution of SME websites which they claim is an improvement to the simplistic stage models. However, there is lack of a social dimension that could explain why some SMEs had dormant or static websites, whilst others had improved and updated their content. This study aims to contribute to research in this area by investigating e-commerce adoption factors in a holistic manner. Moreover, there is also a need to investigate why some SME websites become inactive.

Wilson et al (2008) used cluster analysis to derive a grouped classification of e-commerce adopters amongst UK SMEs. Their study unearthed four groups of organisations, which they classify as: developers, communicators, promoters, and customer life-cycle managers. By applying cluster analysis, the authors claim that the four groups represent four stages of e-commerce adoption. Five factors found to influence the adoption were; top management support, management understanding of business benefits, presence of IT skills, availability of consultancy, and prioritisation of e-commerce (Wilson et al., 2008). The authors encourage further studies in other context to validate and extend the stage model. This study aims to holistically enter an organisation to study the nature and characteristic of e-commerce developments in selected SMEs in a developing country context of Botswana. The aim is not

to extend the stage model as such, but specifically to reveal the factors that affect e-commerce adoption from the inception of the concept within the firm, to the current state in the organisation.

2.3.2 Website Adoption and Functionality

For both B2C and B2B e-commerce transactions, a common characteristic of the e-commerce environment in global firms is that organisations must have a website, which is in contrast with the old traditional Electronic Data Interchange (EDI) where computers with the same type of application would exchange business information. A corporate website is a key tool for marketing an organisation's products and services to the outside world (Uzoka et al., 2007), even though the use of Internet and e-mail may also provide a medium for business exchange for individual online consumers. In a study in a B2C environment, Green & Pearson (2011) noted that website usability greatly contributes to several outcomes that are critical for businesses to attract and retain customers.

Previous studies in e-commerce adoption and use have also focused on website development, quality and strategy amongst other factors (Karakaya & Shea, 2008; Hong & Zhu, 2006; Beatty et al., 2001). One of the early concerns amongst researchers was on the state of corporate websites, as illustrated in the study by Beatty et al., (2001) on how US firms had adopted web technology. In developing countries, the trend in designing websites for SMEs has faced its own challenges such as the lack of funds, organisational readiness, poor ICT skills and expertise, and lack of planning amongst others. Beatty et al., (2001) observed that there were many companies with corporate websites but few who actually obtained business value from them. A drawback to website usefulness includes having too little information regarding the activities of an organisation or having too much information or irrelevant displays that do not add much business value to the SMEs (Thongpapanl & Ashraf, 2011). Payment functionalities were rarely activated due to reasons of security, trust, and lack of credit cards for most individual consumers residing in developing regions of the world (Olatokun & Kebonye, 2010; Cloete et al., 2002).

Amidst a myriad of websites, it is essential to characterise what an e-commerce website looks like. Several researchers have discussed the quality of websites although different perspectives are represented in what academics and practitioners want (Green & Pearson, 2011). Choudhury & Choudhury (2010) identify thirteen characteristics of e-commerce websites. These are:

1) security, 2) appearance, 3) adequate information about products and services, 4) speed in downloading the pages, 5) navigation friendly, 6) search option/search engine, 7) hyperlinks to other information, 8) information on member facilities, 9) history and profile of the company, 10) ability to obtain information in a limited number of pages instead of browsing several pages, 11) option for providing feedback from customers, 12) visitor statistics, and 13) availability of interactive online activities.

The stated characteristics can assist to characterise SME websites in developing country contexts such as Botswana although some of the described features may not necessarily manifest as above, due to the peculiar and idiosyncratic nature of the SME under consideration. These characteristics have been applied in Chapter five to evaluate the status of SME websites in the study.

In a study of US firms, Hong and Zhu (2006) tested for drivers and inhibitors affecting e-commerce adoption and non-adoption at the migration level. They found that there were three drivers for e-commerce adoption: *technology integration*, *web functionalities* and *web spending*. Amongst the inhibitors to e-commerce adoption, Hong and Zhu (2006) discovered three unexpected findings:

1. that EDI use did not prevent firms from adopting internet-based e-commerce and that firms with EDI were less motivated to adopt new technology as a replacement,
2. that partner usage was found to inhibit e-commerce adoption in firms, and
3. that perceived obstacles did not have significant impact on the adoption.

Hong and Zhu (2006) argue that for e-commerce to be of value, organisations' websites must have an element of revenue-generating business activities over the Internet. This perhaps has been in response to many organisational websites for small businesses being likened to catalogues (Karakaya and Shea, 2008) meant to just provide information about the company

and the contact details. However, allowing credit card payments through organisational websites has been a key security concern among SMEs (Molla & Licker, 2005a), and requires a lot of re-organisation in the operation of internal business processes (Humphrey et al., 2003). Many SME websites especially in developing countries have been designed to offer information about the company, and the products and services that they offer, and nothing more (Uzoka et al., 2007).

In a longitudinal study of B2C e-commerce adoption decisions, Rodriguez-Ardura & Meseguer-Artola, (2010) argue that understanding e-commerce issues is still a challenge even in developed countries. Using an integrative approach to analyse influence of environmental, technological, and organisational factors over a long period of time, the authors claim to be able to determine B2C e-commerce adoption factors holistically. Their findings indicate that key factors enabling e-commerce adoption are derived from the development or enrichment of the consumers' consumption patterns, the technological readiness of the market forces, the firm's global scope, and its competences in continuously innovating.

The growth and application of B2C e-commerce have been motivated by several consumers who can access Internet through PC's from their homes (Oppenheim & Ward, 2006) or through their mobile devices at any location (Apulu et al., 2011; Bell & Loane, 2010). These developments have begun to show prominence among the working-class in developing countries such as Botswana (Iyanda & Ojo, 2008) although the majority of households are still unable to have access due to other limitations in their local environment.

2.3.3 Web 2.0 and SME E-commerce Adoption

Web 2.0, a term credited to O'Reilly (Bell & Loane, 2010; O'Reilly, 2007), is a set of economic, social, and technology trends that collectively forms the basis for the next generation of the Internet, widely known as a more mature, distinctive medium characterised by user participation, openness, and network effects (Bell & Loane, 2010). Key features of Web 2.0 applications highlight the following (Bell & Loane, 2010):

1. The Web as a platform;
2. Content and data as the driving force of applications;

3. An architecture of participation that encourages users to contribute;
4. Software that is easy to build and use.

The advent of social networking websites (also known as social media) such as Facebook, Twitter, LinkedIn, MySpace, and others, has made organisations to re-think the role of e-commerce in SMEs. Other than the usual social aspects, firms and indeed SMEs can use social media and other web 2.0 features to market their products and services (Scupola, 2010; Constantinides, 2010). Studies on Web 2.0 applications in SMEs are still scanty globally, although they are bound to increase. Bell & Loane (2010) illustrate how Irish SMEs applied Web 2.0 tools and techniques to leverage their internal and external capabilities. This study extends this understanding to include other types of e-commerce activities as defined by Turban et al., (2004). As ICT developments keep on changing, new forms of e-commerce can be incorporated into the firm to make it more competitive in the local and international business environment (Constantinides, 2010; Porter, 2001; Luftman, Lewis & Oldach, 1993). Four aspects of Web 2.0 applications are discussed in the following sub-sections. These are: classification of Web 2.0 networked companies, online branding, search engine marketing or optimisation and cloud computing.

2.3.3.1 Classification of Web 2.0 Networked Companies

Bughin & Chui (2011) classify networked companies that capitalise on Web 2.0, into three distinct clusters. These are described in the following ways:

1. Those using the Web effectively for interactions with employees (internally networked organisations),
2. Those forging links with customers and suppliers (externally networked organisations), and
3. Those combining internal and external linkages at high levels of effectiveness (fully networked enterprises).

The authors further state that information flows faster to employees of internally-networked firms, while higher customer satisfaction and greater marketing efficacy are hallmarks of externally-networked companies. The application of Web 2.0 and its related applications in

global business are confined to large corporations in mostly the developed and rich economies. The uptake amongst SMEs in developing countries is just beginning and thus very small, although there is some optimism that this will grow (Apulu, Latham & Moreton, 2011) due to the flexibility and cheaper way of deploying new features of modern ICT generations (Bell & Loane, 2010).

2.3.3.2 Online Branding

Researchers have noted the influence of social media in accentuating brands and company profiles (Booth & Matic, 2011; Rowley, 2009). Yan (2011) points out that the same principles of branding that apply in offline marketing may need to be enforced in e-commerce transactions. He argues that companies need to collaborate with consumers on everyday marketing purposes. The author further adds that the application of blogs and social networking in small organisations can be handy because people can understand the personalities behind the scenes. However, SME managers in developing countries continue to face challenges of incorporating such new forms of marketing enabled by the Internet. Some of their challenges still point to the lack of ICT personnel and managerial foresight, or perception of what kind of benefits their organisation can achieve (Caldeira & Ward, 2001; Jarvenpaa & Leidner, 1998).

2.3.3.3 Search Engine Marketing and E-commerce Adoption

In order for SMEs to maximise their potential on the Web, they may be able to apply search engine marketing (SEM) or optimisation techniques (Quinton & Khan, 2009; Murphy & Kielgast, 2008) to make them more visible among millions of websites in the Internet world. Quinton & Khan (2009) state that ‘organisations now regard having a website as mandatory but as more businesses create websites the real challenge lies in driving traffic to a specific website.’ The researchers address the issue of website traffic generation for SMEs which have limited resources to determine how they might make more effective use of SEM tools. They investigated specific SEM tools such as press release distribution and directory submission. Their findings indicate that a combined use of both press-release distribution and directory submission does increase traffic generation to a website.

In a multi-case study to assess Swedish SMEs on how they exploited SEM techniques, Murphy & Kielgast (2008) found that although all hotels had a website, they did not exploit SEM, which they attribute to poor marketing planning and lack of control of their website through outsourcing key web development and optimisation activities.

2.3.3.4 Cloud Computing and SME E-commerce Adoption

Another trend in applying e-commerce for SMEs is the cloud computing phenomenon, which is defined by Poelker (2012) as ‘a transformational shift from buying hardware and software components and building out a data center, to leveraging a reference architecture built and managed by someone else.’ Since SMEs have limited resource they may be able to employ other organisation’s ICT infrastructure somewhere in the ‘cloud’ under a ‘pay as you go’ model (Bell & Loane, 2010). There are few studies that have researched the impact of cloud computing on SMEs. It would be interesting to discover the extent of SME motivation by new web applications in the developing world.

2.3.4 Non-Adoption of E-commerce in SMEs

Previous studies have generally focused more on the adoption than the non-adoption of e-commerce. The issue of non-adoption of e-commerce has been approached from a collective view where firms have been classified as non-adopters such as in the work of McCole and Ramsey, 2005, Anckar, 2005, and Scupola, 2009. In these studies, non-adoption is assumed to be a concluded position of the firm that may suggest that SMEs are unable to make rational decisions in favour of e-commerce in the firm. Further, McCole and Ramsey (2005) suggest that a situation of non-adoption in the SMEs is an ill-advised one and that firms that wish to compete globally must of necessity adopt e-commerce. This study argues that non-adoption in firms may occur due to some conditions beyond the realm of management’s control. In this study, non-adoption of e-commerce aligns with the previous views but also situates the firm in a position where they are unable to undertake e-commerce based on circumstances beyond their control. SMEs may face circumstances of discontinuity of e-commerce adoption (Hultman, 2007).

The next section discusses theoretical foundation of e-commerce adoption research.

2.4 Theoretical Foundations in E-commerce Adoption Research

This section reviews the most commonly used theories that have been employed in technology adoption, especially e-commerce adoption research in small and medium-sized enterprises. In review are the following: the Theory of Planned Behaviour (TPB), the Technology Acceptance Model (TAM), the Technology-Organisation-Environment (TOE) framework, the Perceived E-readiness Model (PERM), the Diffusion of Innovation Theory (DIT), and the Resource Based Theory (RBT) combined with Contextualism. A discussion on the application of the Resource Based Theory and Contextualism is also provided.

2.4.1 The Theory of Planned Behaviour (TPB)

Ajzen (1991) proposed the Theory of Planned Behaviour (TPB) from the social psychology background. TPB posits that there are three constructs that predict intention to use an innovation. These are attitude, subjective norm, and perceived behavioral control. Attitude is formed from cognitive beliefs and refers to ‘an individual’s positive or negative feeling (evaluative affect) about performing the target behaviour’ (Fishbein & Ajzen, 1975, p. 216). Subjective norm represents the social influences on behaviour and refers to the perception about whether others who are important to a person believe that he or she should engage in a particular behavior (Fishbein & Ajzen, 1975). Perceived behavioural control represents the constraints on behaviour and refers to the ‘perceived ease or difficulty of performing a behaviour’ (Ajzen 1991, p. 188). In a decomposed TPB, Taylor and Todd (1995b) elevate the theory as they argue that it provides a full understanding of usage behavior and intention and more effective guidance to IT managers and researchers interested in the study of system implementation.

Several studies have applied and modified the TPB in the small business context of developed countries. Riemenschneider et al., (2003) combined TPB and the Technology Acceptance Model to study small business executive’s decisions to adopt the web. They found that the improved social contact with customers and vendors provided by the internet was the driving force behind website adoption. Using the Theory of Planned Behaviour (TPB) in a developing country context, Uzoka et al., (2007) found that perceived advantages, Internet

complexity, accessibility, and management support have a statistically significant influence on the adoption. It was also observed that the study results tend to agree with the TPB, but attitude seemed to weigh more than subjective norm and perceived behavioural control. The study also found that the decision to adopt e-commerce in Botswana was not significantly affected by facilitating conditions that usually affect organisations in the advanced stage of e-commerce adoption. They argue that this may be attributed to contextual issues that are internal and external to organisations in Botswana which are at the initial stage of e-commerce adoption. It may be possible to infer, following Thong (1999), that while owner/manager characteristics and Information systems (IS) characteristics may influence the initial decision to adopt e-commerce in SMEs, they do not affect the extent of e-commerce adoption subsequently.

2.4.2 Technology Acceptance Model (TAM)

Another key theory widely used in information technology adoption literature is the Technology Acceptance Model (TAM). TAM was developed by Davis (1986) to explain the user adoption of technology in organisations. TAM posits that two factors, perceived usefulness and perceived ease of use, are the two main determinants of system usage in organisations (Taylor & Todd, 1995a; Davis, 1989). It is asserted that the systems designer has some degree of control on these two factors. In TAM, Perceived Usefulness (PU) is defined as the degree to which an individual believes that using a particular system would enhance his or her job performance whereas, Perceived Ease of Use (PEOU) is the degree to which an individual believes that using a particular system would be free of physical and mental effort (Davis, 1989).

Several studies have been conducted to replicate and extend TAM to determine factors affecting technology adoption in organisations. Venkatesh and Davis (2000) applied TAM in a longitudinal study to include social influence processes and cognitive instrument processes. TAM was also tested by Grandon and Pearson (2004) in the small business context in the USA. They identified four factors that influence electronic commerce adoption: organisational readiness, external pressure, perceived ease of use, and perceived usefulness.

Though a popular model, TAM has been criticised for its generality and that it ignores certain personal behavioural factors (Taylor & Todd, 1995b), such as cultural and social influences that may be critical to understanding e-commerce adoption in SME contexts of developing countries. Further, the very fact of equating perceived usefulness to use has been seen as problematic in some literature. Zheng, Padman, Johnson, & Diamond, (2005) note that perceived usefulness is poorly correlated with actual use. Further, it is argued that self-reported usage or intention to use may not be an appropriate surrogate for use because users are poor estimators of aspects of their own behaviours (Aydin and Rice, 1991 cited in Zheng et al., 2005). To perceive of a technology and its benefits that one has not used has been seen as problematic for TAM replication in the developing country context as the prevailing circumstances that exist in the developing countries are not necessarily the same as in developed countries (Avgerou, 1998).

2.4.3 The Technology-Organisation-Environment (TOE) Framework

The TOE framework suggested by Tornatzky and Fleischer (1990) states that the process of technological innovations in organisations is influenced by three dimensions, namely: the organisation context, the technological context and the external task environment (industry). They thus argue that for any organisation to adopt and implement technological innovations, the decision making process involves consideration of these three areas. Further, they explain that the constituent elements in the organisational context include formal and informal methods, linking structures, communication processes, size and slack. The environmental context includes characteristic and market structure, technology support infrastructure, and government regulation, whereas the technological context includes availability and characteristic of the technology (Tornatzky and Fleischer, 1990). The application of TOE in the SME environment has been extended to include the role of the CEO (Thong, 1999) who in many circumstances is the main decision maker as well as the owner of the business. TOE may be useful in the SME context if it can incorporate the whole spectrum of the stakeholder (Robertson, 2010).

2.4.4 The Perceived e-Readiness Model (PERM)

Molla & Licker (2005a, 2005b) developed the Perceived e-Readiness Model (PERM) for developing countries context. The model considers some internal organisational factors, known as perceived organisational e-Readiness (POER), and external factors, identified as perceived external e-Readiness (PEER), as important for e-commerce adoption. The authors define POER to comprise the following:

1. the organisation's perception, comprehension, and projection of e-commerce and its potential benefits and risks (innovation imperative attributes),
2. the commitment of its managers (managerial imperative attribute); and
3. key organisational components, such as its resources, processes, and business infrastructure (organisational imperative attributes)

PEER represents an organisation's assessment and evaluation of relevant external environmental factors (environmental imperative attributes) such as Government e-Readiness, Market Forces e-Readiness and Support Industries e-Readiness (Molla & Licker, 2005a, 2005b). The authors further claim that PERM can assist organisations in developing countries to locate, measure and manage risks in e-commerce adoption activities.

Tan et al., (2007) validated and tested the Perceived e-Readiness Model in China. They found that most problems of B2B e-commerce adoption are concerned with Perceived Organisational e-Readiness and social-cultural factors. Tan et al., give credit to the PERM as it is more comprehensive than earlier models, examines e-commerce institutionalisation, and for its inclusion of extensive external environmental and internal organisational issues. Further, they add that it is more relevant for the developing country context than previous models, since it was specifically designed to take into account contextual variables in developing countries (Molla & Licker, 2005a, 2005b). The inclusion of e-commerce institutionalisation is well credited for PERM as few models have covered it (Zhu & Kraemer, 2005). However, Tan et al., (2007) point out that one of PERM's drawbacks is the exclusion of important industry descriptors, such as sector, and firm-size (Thong, 1999). Furthermore, the inability to capture educational background of employees is another issue when applying PERM (Aljifri et al, 2003 cited in Tan et al., 2007). PERM does not recognise

the influence of individual factors in e-commerce adoption, but instead emphasizes organisational characteristics as being critical to the advancement of e-commerce in the organisation. PERM is also unable to capture small firm idiosyncrasies (Parker & Castleman, 2009; Drew, 2003) that may be critical in determining e-commerce adoption in SMEs.

2.4.5 Diffusion of Innovation Theory (DIT)

Inspired by earlier studies in diffusion research, the Diffusion of Innovation Theory (DIT), proposed by Rogers (1995), is often cited as one of the key proponents of adoption and diffusion in literature. In DIT, the following definitions are given:

1. Diffusion is ‘the process by which an innovation is communicated through various channels over time among the members of the social system (Rogers, 1995, p.5).’
2. Adoption is ‘a decision to make full use of an innovation as the best course of action (Rogers, 1995, p.22).’
3. Innovation is ‘an idea, practice or object that is perceived as new by an individual or other unit of adoption (Rogers, 1995, p.11).’

Although the terms diffusion and adoption seem to be synonymous in some literature, they can be understood to be different. When the term diffusion is applied, the level of analysis is at a macro level (for example, a social system) as found in the definition by Rogers, and when adoption is applied, the level of analysis tends to be on the micro-level, in a firm or at an individual level (Hultman, 2007; Iacovou et al., 1995).

According to DIT, an innovation will be communicated over time through channels of communication within a particular social system (Rogers, 1995). Individuals are seen as possessing different degrees of willingness to adopt innovations and thus it is generally observed that the portion of the population adopting an innovation is approximately normally distributed over time along an S-shaped curve (Rogers, 1995). The following five categories of individual innovativeness (from earliest adopters to laggards) and the rates of adoption are described: innovators, early adopters, early majority, late majority, laggards (Rogers, 1995).

According to Rogers (1995), an individual’s decision about an innovation is not an instantaneous act but a *process* that occurs over time, consisting of a series of actions and

decisions. Thus there are five stages of the innovation-decision process (Rogers 1995, p.162) defined as follows:

1. *Knowledge* occurs when an individual (or other decision-making unit) is exposed to an innovation's existence and gains some understanding of how it functions.
2. *Persuasion* occurs when an individual (or other decision-making unit) forms a favourable or unfavourable attitude toward the innovation.
3. *Decision* occurs when an individual (or other decision-making unit) becomes involved in activities that lead to a decision to adopt or reject the innovation.
4. *Implementation* occurs when an individual (or other decision-making unit) puts an innovation into use.
5. *Confirmation* occurs when an individual (or some other decision-making unit) seeks re-enforcement for an innovation-decision already made, or reverses a previous decision to adopt or reject the innovation if exposed to conflicting messages about the innovation.

Further, the rate of adoption of innovations is impacted by five attributes, defined by Moore and Benbasat (1991, p.195) as follows:

1. Relative Advantage, the degree to which an innovation is perceived as being better than its precursor,
2. Compatibility, is the degree to which an innovation is perceived as being consistent with the existing values, needs, and past experiences of potential adopters,
3. Complexity, the degree to which an innovation is perceived as being difficult to use,
4. Observability, is the degree to which the results of an innovation are observable to others, and
5. Trialability is the degree to which an innovation may be experimented with before adoption.

Other factors extended by Moore and Benbasat (1991) include image, which is defined as 'the degree to which use of an innovation is perceived to enhance one's image or status in one's social system', and voluntariness of use, which is defined as 'the degree to which use of the innovation is perceived as being voluntary or of free will.'

Parker & Castleman (2009) argue that DIT when used in its entirety has better explanatory power because it includes a component of social dimension of SMEs rather than a collection of mitigating barriers and drivers. Although Rogers' work has been popular and replicated in several studies (Hultman, 2007; Looi, 2005; Iacovou et al., 1995), it has faced several criticisms, especially those that question its applicability in complex and network based environments (Lyytinen & Damsgaard, 2001). It has been argued that the kind of adoption process that Rogers describes is binary, linear, and has a simplistic nature implying that the adoption and use of technology is easy (Hultman, 2007). This is far detached from the scenario of an SME whose nature and characteristic has been described as idiosyncratic (Nooteboom, 1988), and an e-commerce adoption process that is complex and dynamic. Further, DIT has been accused of being atomistic and that it favours a cross-sectional approach (Lyytinen & Damsgaard, 2001).

From the initial definition of DIT, this study draws from the modification of Roger's DIT model proposed by Hultman (2007) that suggests a processual (Kurnia & Johnston, 2000) view of e-commerce adoption in SMEs. Hultman's model depicts a process that has four stages: Presentation, Evaluation, Decision and Implementation. The modified model also has a feedback loop that allows for re-evaluation of decisions to adopt or reject, and includes four secondary options that are introduced after the initial decision. E-commerce adoption can then be understood to be a process that involves actors at the individual and aggregate levels of the SME (Hultman, 2007; Lyytinen & Damsgaard, 2001; Kurnia & Johnston, 2000).

2.4.6 The Resource-Based Theory (RBT)

The Resource-Based Theory (RBT) is one of the most important theories in the field of strategic management (Galbreath, 2005; Narayanan, 2001). It can be described as a complementary perspective to market-based theories proposed by researchers such as Porter (1990) and Narayanan (2001). Market-based theories in the area of e-commerce would expect firms to know their position well with respect to their competitors (Jeffcoate, Chappell, & Feindt, 2002). According to Rivard et al., (2006), the original work on RBT originated in studies by Penrose (1959) who describes the firm as a 'bundle of resources'.

RBT was developed by Barney (1991) with a contrasting view; that of looking inward into the organisation's resources for competitive advantage (Wade & Hulland, 2004; Peppard & Ward, 2004). RBT explains that a firm can gain sustainable competitive advantage by carefully exploiting and developing the various resources it has (Barney, 1991; Galbreath, 2005; Parker & Castleman, 2009; Caldeira and Ward, 2001) or those that are in the external environment (Ray & Ray, 2006; Jarvenpaa & Leidner, 1998). The definition of 'resources' itself has not been uniform in extant literature (Peppard & Ward, 2004). Resources are defined as 'stocks of available factors that are owned or controlled by the firm' (Amit & Schoemaker, 1993). Resources include assets, capabilities, processes, attributes, knowledge and know-how that are possessed by a firm, and that can be used to formulate and implement competitive strategies (Rivard et al., 2006; Wade & Hulland, 2004). Moreover, they also add that for a firm to gain competitive advantage, it must have a resource that is not duplicated in other firms, thus meaning that the resources must be unique to the firm and also highly valued from the perspective of outside competing firms (Wade & Hulland, 2004). Thus, an 'organisation is said to have a competitive advantage when it implements a value-creating strategy, not simultaneously being implemented by any current or potential competitor (Barney 1991).'

According to RBT (Barney, 1991), a firm's resources must possess the following characteristics for them to contribute towards competitive advantage:

1. Valuable: the resource must have strategic value to the firm;
2. Rare: the resource must be unique and rare to find;
3. Perfect imitability: it must not be possible to perfectly imitate or copy the resource (because it is difficult to acquire; because the link between the capability or the achieved sustained competitive advantage is ambiguous or socially complex);
4. Non-substitutability: competitors cannot substitute the resource by another alternative resource to achieve the same results.

Parker & Castleman (2009) give credit to RBT because it highlights the resources that any firm has, including tangible and intangible resources. A limitation of RBT is that it assumes resources in an SME will be used to full capacity (Parker & Castleman, 2009; Melville et al.,

2004). Parker and Castleman (2009) argue that RBT on its own is insufficient to study SME e-commerce adoption issues as it assumes that all small firms exclusively pursue economic goals, and that it takes the assumption that SMEs already have the resources.

Resources identified in the firms include owner-manager, employee characteristics, IS/IT technologies (Caldeira and Ward, 2003). Rivard et al., (2006) noted that previous studies that used a resource-based view of IT contribution to firm performance focused on the relationships between IT resources themselves and business performance.

Despite the drawbacks highlighted by Parker and Castleman (2009), RBT has been useful in previous studies as evidenced from the previous discourse. Caldeira and Ward (2003) used the Resource-Based Theory to interpret the successful adoption and use of information systems and technology in manufacturing small and medium-sized enterprises in Portugal. This study draws from the strengths of RBT to advance the understanding of the e-commerce environment in the SME. The following sub-sections provide further considerations to the application of RBT with Contextualism.

2.4.6.1 Combining the Resource-Based Theory and Contextualism

The original RBT is inherently internally focused, allowing the organisation to establish its competitive position mainly through various resources within the firm (Wade & Hulland, 2004). In developing countries, the application of resource-based theory in information systems has been scanty. To begin with, the highly fragmented business environment that prevails in most developing countries does not provide a competitive environment for most businesses, let alone SMEs (GITR, 2012; Martinsons, 2008; Kshetri, 2007). This makes it difficult to adopt the assumptions proposed by RBT as most SMEs are generally resource-constrained. Thus, a modification of the RBT may be made to accommodate its application in less-developed environments. The study by Jarvenpaa & Leidner (1998) applied the resource based theory in the context of a local firm in Mexico, which they described as a less-developed economy. Essentially, the prevailing conditions in this emerging market did not ‘inherently embrace information as a valued business resource (Jarvenpaa & Leidner, 1998).’

The researchers made three extensions to the original RBT to suit the local context of the developing country firm. These are:

1. The dynamic capabilities framework: This framework allows the firm to act beyond the norms of the traditional resources as defined in the RBT (Teece et al.,1997)
2. Institutional influences, and
3. The network analysis.

Their findings indicated that the dynamic capabilities of strategic foresight and flexibility, coupled with a core competency of trustworthiness were critical in effecting internal and external changes for the organisation's success. Similar adjustments to the original RBT have been made in other works in developing countries as exemplified by Shalhoub & Al Qasimi's (2006) work on the diffusion of e-commerce in the United Arab Emirates (UAE).

Boateng, Hinson, Heeks, Molla & Mbarika (2010) developed a theoretical framework on the application of RBT in e-commerce in developing countries. They state that the resources that developing country firms need must be found in 'a combination of internal and external (accessible to the organisation) assets, ordinary, and core and dynamic capabilities which enable the organisation to develop e-commerce capabilities that create and sustain e-commerce benefits at a certain point of their strategic orientation.' However, this study has not followed Boateng et al.'s framework as it does not specify the application in SMEs.

This study extends RBT to developing country contexts by combining it with Contextualism that takes cognisance of the factors in the external and internal environment of the firm, the history of the firm and its ICT and e-commerce development, the nature and characteristic of e-commerce processes, the processes that integrated the various factors or resources, and the institutional factors in the local business environment, to explain e-commerce adoption issues in the firm. Thus, RBT will be primarily useful to identify the resources within the firm. This understanding can be strengthened with Parker and Castleman's (2009) observation when they stated that RBT allows recognition of tangible and intangible resources in a small firm.

Contextualism is therefore drawn here because it provides an expansion of the RBT, by accommodating aspects within and outside an organisation, as illustrated in Pettigrew's (1987, 1990) work.

2.4.6.2 Contextualism: A Methodology or Theory?

This study draws from Pettigrew's (1990) view that 'theoretically sound and practically useful research on change should explore the contexts, content, and process of change together with their interconnections through time.' E-commerce adoption is viewed as a process of change in this study, assisting individuals and organisations to alter the processes of negotiations, buying, selling, investing and banking through e-mail and the Internet, and the application of the Web. Pettigrew (1990) defines context as the outer and inner context (or environment) of an organisation. Outer context refers to economic, social, political, and the sectoral environment surrounding the firm, whereas inner context refers to the realm of the organisation that defines its structure, culture and political environment.

Researchers have used contextualism in various ways, to suit their research needs. DeRose (1999) used contextualism as a research paradigm to explain and defend his relativism stance. Walsham and Sahay (1999) applied contextualism as a research method to highlight the contextual issues of concern in the contexts, content and process of change in close interaction with the researcher. Contextualism may also be applied as a theoretical framework (Toraskar & Lee, 2006; Effah, 2011). This study neither applies contextualism as a paradigm nor a research method, but rather it takes Contextualism as a theory for data analysis to assist in identifying various factors in the process of e-commerce adoption, within the inner and outer context of the organisation.

2.4.7 The Application of Theory in E-commerce Adoption

This section deliberates on the application of theory in previous e-commerce studies. Parker and Castleman (2009) noted that most e-commerce studies apply theory by developing or formulating a model or a framework that is strictly followed to collect data, and then test the results. This is a popular approach especially in the positivist stance (Chua, 1986). In this study, the application of theory is informative, to allow an appreciation of these theories.

More importantly, theory has been applied indirectly in the derivation of the broad categories of the conceptual framework in sections 1.5 and 3.6.

2.5 Summary and Conclusion

This chapter set out to review related literature on e-commerce adoption and non-adoption in SMEs. The results of this chapter have shown the dynamic developments of e-commerce, built on the foundation of the Internet and e-mail, and its advancement with the use of the Website in the global world. The sections discuss briefly the history of e-commerce, the potential benefits of engaging in e-commerce, and the SME readiness for undertaking e-commerce initiatives. A discussion on globalisation, its challenges and opportunities is provided, whilst highlighting SME experiences and challenges in developing country contexts. The concept of the digital divide is also reviewed to expose the developments of SMEs from an e-commerce perspective. The chapter then reviews factors that affect e-commerce adoption in SMEs, revealing various factors at the individual, organisational, technological and environmental categories. The factors are similar to previous studies, except that they are more negatively magnified in developing country SMEs. Some concepts related to e-commerce development in organisations are discussed such as the stages of growth models, website adoption and functionality issues, and the Web 2.0 applications. The situation of non-adoption of e-commerce is also explained. The chapter also reviews selected theories that are employed in prior e-commerce adoption studies, such as; TPB, TAM, TOE, PERM, DIT, and RBT combined with Contextualism.

Chapter 3 Research Paradigms and Methodology

3.0 Introduction

The previous chapter introduced some theoretical concepts that will be followed up in detail in this chapter, to present the philosophical position of this study. This chapter discusses the philosophical foundation of information systems research. The first section provides philosophical assumptions that apply to IS research and then provides a brief introduction to research paradigms. The next section is a discussion on the three research paradigms, namely: positivist, interpretive, and critical. The chapter then provides an overview of some application of the paradigms in e-commerce adoption research (EAR). A motivation is provided for the choice of the interpretive approach as directed by the research questions. This is followed by a discussion on the consideration for the research paradigm, as well as a review of the data characteristics that appeal to this study. The last section is a conceptual framework, followed by a summary and conclusion at the end of the chapter.

3.1 Philosophical Assumptions in IS Research

Although e-commerce is a multi-disciplinary field that can be found in other fields such as engineering, marketing, agriculture, and many others; its philosophical tenets have been safely grounded in information systems (IS) research. Philosophical assumptions in IS have usually concerned themselves with systematic studies of knowledge; what is known, acquired and appropriated by humans (Wyssusek, Schwartz & Kremberg, 2002). At the high level of abstraction, four broad categories of inquiry may be defined as follows (Wyssusek et al., 2002; Chua, 1986; Guba & Lincoln, 1994);

- i. Ontological assumptions: The theories of existence or the reality of being of phenomena (King & Kimble, 2004).
- ii. Epistemological assumptions: Theories of knowledge, which are concerned with issues of ‘what can we know and how can we know it (King & Kimble, 2004).’

- iii. Assumptions concerning human nature, in particular, the relationship between human beings and their environment.

The above three sets of assumptions have direct implications for the fourth set of assumptions, of a methodological nature, and each one has important consequences for the way in which they intend to investigate and acquire 'knowledge' (Roode, 2007).

- iv. Methodological assumptions: Indicate which research methods and techniques are considered appropriate for the gathering of valid empirical evidence (Orlikowski & Baroudi, 1991, p.8). Further, they state that which methods are considered appropriate clearly depend on how the veracity of a theory is established.

These four sets of assumptions are referred to as assumptions about the nature of social science (Burrell & Morgan, 1979). Furthermore, they conflate the four sets of assumptions or paradigms into a polarised 'subjective and objective' dimension. These two dimensions are used to define and explore the characteristics of a research paradigm which are being described in the following section.

3.2 Research Paradigms and E-commerce Adoption

Guba and Lincoln (1994) define a paradigm as a 'set of basic beliefs about the nature of the 'world' and the individual's place in it and the range of possible relationships to that world and its parts.' According to Wyssusek et al., (2002), 'the function of IS in the process of human inquiry can only be understood on the basis of sound conceptualisation of presuppositions, underlying the concept of inquiry.' The concepts of inquiry, also known as research paradigms, have previously been studied under the terms; positivist, interpretive, and critical. Each of the three paradigms has their own position with regard to the ontological, epistemological and methodological questions in research (Guba & Lincoln, 1994). The following sections discuss these paradigms, and later, their application in e-commerce adoption will be provided.

3.2.1 The Positivist Paradigm

Positivism, also referred to as Scientism, is the oldest and most popular research paradigm (Oates, 2006, p. 285). Auguste Comte (1798–1857) is credited with founding the philosophy of positivism (Moore, 2010). Moore (2010) states that:

‘Positivism assumes that scientific knowledge is the highest form of knowledge, and that scientific knowledge comes from studying directly observable and measurable events. Other knowledge claims, for example, those based on religious or metaphysical assumptions, are held to be imperfect because they are not derived from actual publicly observable experiences. According to positivism, then, the world consists of laws and principles that are discovered through direct observation. If we do not know enough about some aspect of nature, we must study, measure, and otherwise directly observe our subject matter more closely. Indeed, if we cannot do so, we must assume that the purported subject matter does not even exist. Moreover, scientific knowledge has the degree of certainty necessary to be regarded as foundational, for example, as a basis for structuring society and thereby improving it.’

Over the centuries, several philosophers such as Plato, Popper and Descartes, have helped to diffuse various forms of positivism into work culture, science and other formal professions (Thornton, 1997). Positivist studies are premised on the existence of a priori fixed relationships within phenomena which are typically investigated with structured instrumentation (Orlikowski & Baroudi, 1991, p.5). ‘Such studies serve primarily to test theory, in an attempt to increase predictive understanding of phenomena.’ Further, positivist studies can be classified as such ‘if there were evidence of formal propositions, quantifiable measures of variables, hypotheses testing, and the drawing of inferences about a phenomenon from the sample to a stated population (Orlikowski & Baroudi, 1991:5).’

According to Shanks and Parr (2004), the positivist paradigm has the following positions with regard to ontology, epistemology and methodology. These are:

1. An objective reality is assumed which can be systematically and rationally investigated through empirical investigation, and is driven by general causal laws that apply to social

behaviour. This is sometimes called *naive realism* (the ontological position) (Guba and Lincoln, 1994).

2. The researcher and the phenomena being investigated are assumed to be independent, and the researcher remains detached, neutral and objective. Any reduction in independence is a threat to the validity of the study, and should be reduced by following prescribed procedures (the epistemological question).
3. General theories are used to generate propositions that are operationalised as hypotheses and subjected to empirical testing that is replicable. Hypotheses should be testable and provide the opportunity for confirmation and falsification.

At the methodological level, positivist researchers believe that large-scale sample surveys and controlled laboratory experiments are suitable research methods, as they allow researchers a certain amount of control over data collection and analysis through manipulation of research design parameters and statistical procedures (Orlikowski & Baroudi, 1991, p.8; Chua, 1986).

3.2.2 Positivist Approaches in E-Commerce Adoption

Ontologically, the positivist approach in e-commerce adoption assumes that an objective physical (an SME organisation) and social world (interactions of SME actors with e-commerce) exists independently of humans, and whose nature can be relatively unproblematic, apprehended, characterised, and measured (Orlikowski & Baroudi, 1991, pp. 7-9). Most literature on e-commerce adoption research in SMEs has largely leaned on the ontological and epistemological tenets of the positivist approach which are characterised by large-scale sample surveys and models (Chen & Hirschheim, 2004). As such they allow researchers a certain amount of control over data collection and analysis through manipulation of research design parameters and statistical procedures to produce facts and figures (Orlikowski & Baroudi, 1991:8; Molla and Licker, 2005a, 2005b; Oates, 2006).

Studies that favour a positivist approach in e-commerce adoption research in small and medium enterprises align with the assumption that there is an objective reality that can be methodically modeled, quantified and statistically measured and tested. There are several studies that include perception-based behavioural models such as the Theory of Planned

Behaviour (TPB) in combination with the Diffusion of Innovation Theory (Rogers, 1995), Technology Acceptance Model (TAM) (Davis, 1986) and other TAM related studies (Mukti, 2000; Cloete et al., 2002; Uzoka et al., 2007) and the e-readiness model for developing countries, PERM, developed by Molla and Licker, (2005a, 2005b).

3.2.2.1 Strengths

The characteristic of being objective in positivism allows the research studies to be easily undertaken and controlled usually with no cost overruns. Thus the deterministic nature of positivist studies in e-commerce adoption would allow an objective environment for SMEs that is carried out through large surveys or experiments. The use of models has been used to derive and predict e-commerce adoption in developing countries such as in the case of Molla & Licker (2005b).

3.2.2.2 Limitations

The limitations of positivism can be extracted from its definition which aims to understand phenomena independent of the participants or humans. Yet, Guba & Lincoln (1994) argue that this is impossible because human behaviour, unlike that of physical objects, cannot be understood without reference to the meanings and purposes attached by human actors to their activities. Another limitation is that of ‘context stripping’ where a ‘selected subset of variables necessarily ‘strip’ from consideration, through appropriate controls and randomisation, other variables that exist in the context that might, if allowed to exert their effects, greatly alter the findings’ (Guba & Lincoln, 1994). Another critique of organisational-technologically led theories is that of assuming that individual users in the organisation are passive determinants of the technology they use.

3.2.3 The Interpretive Paradigm

In the interpretive paradigm, Klein & Myers (1999, p.69) state that information systems research can be classified as interpretive if it assumes that our knowledge of reality is gained only through social constructions such as language, consciousness, shared meanings, documents, tools, and other artifacts. The aim of all interpretive research is to understand how members of a social group, through their participation in social processes, enact their

particular realities and endow them with meaning, and to show how these meanings, beliefs and intentions of the members help to constitute their social action (Orlikowski & Baroudi, 1991, p.13). The following features apply to the interpretive paradigm as illustrated by Wyssusek et al., (2002);

- i. Ontology: Relativist; Realities exist in the form of multiple mental constructions; dependent for their form and content on the person who holds them;
- ii. Epistemology: Subjectivist; the inquirer and the subject of inquiry are fused into a single (monistic) entity; findings are literally the creation of the process of interaction between the two; the concept of truth is substituted by the concept of viability.
- iii. Anthropology: Human as creator of realities.
- iv. Methodology: Hermeneutic; individual constructions are elicited and refined hermeneutically, with the aim of generating constructions on which there is substantial consensus.

Generalisation from a research setting to a population is not sought in interpretive research; rather, the intent is to understand the deeper structure of a phenomenon, which it is believed can then be used to inform other settings (Chua, 1986; Orlikowski & Baroudi, 1991, p. 13). Generalisation in interpretive studies is conceived differently, as Walsham (1995b) illustrates. Walsham (1995a) presents four types of generalisation in interpretive case studies: the development of concepts; the generation of theory; drawing of specific implications in particular domains of action; and contributions of rich insights. The author further noted that these types of generalisations are not mutually exclusive.

3.2.4 Interpretive Approaches in E-Commerce Adoption

Studies that favour the interpretive style in SME e-commerce adoption assume that reality is only through social constructions and shared meanings (adapted from Walsham, 1993, p.4-5), and the researcher becomes the medium for communicating what the reality of e-commerce adoption is to the outside world (adapted from Andrade, 2009; Walsham 1995a; 1995b). Understanding the e-commerce adoption phenomenon in SME context would entail that a researcher immerses himself/herself in the analysis of language, image, and consciousness of

the actors. In the application of this study, e-commerce adoption has been defined to include activities in the process of buying, selling, transferring, or exchanging products, services, and/or information based on several prevailing conditions in developing countries, which are as follows:

- 1) The use of Internet for research using search engines,
- 2) Communication of e-commerce transactions using Internet applications such as electronic mail, and/or VOIP applications,
- 3) the use of the World Wide Web (in short, the web) to enhance various business activities such as marketing of products and services, online ordering and cash payments.

3.2.4.1 Strengths

The interpretive paradigm allows the researcher to see reality in its context without the imposition of a controlling mechanism. In essence, a social and political dimension is usually employed to examine the whole of phenomena. Thus, rich descriptions of phenomena are usually sought in order to understand them (Walsham, 1995b). The strength in the interpretive approach is the close involvement between the researcher and the phenomena (Walsham, 2006) which allows a qualification of certain issues that may not be easily captured in a controlled instrument, or simply by some expression of words.

3.2.4.2 Limitations

The interpretive paradigm has faced criticisms on several accounts. Firstly, having to depend on the extent of agreement between the inquirer and subjects of inquiry as the standard for judging the adequacy of an explanation has been considered to be a weakness (Habermas, 1978 cited in Chua, 1986). They thus question how one can reconcile the fundamental differences between the researcher and the actors. Secondly, the skills of the researcher are particularly important when carrying out interpretive studies. This condition may not be present in certain circumstances. Thirdly, some studies have complained that the close investigation in interpretive paradigm allows some biases to creep in (Gale & Beefink, 2005). Orlikowski and Baroudi (1991, p.18) summarise four weaknesses of interpretive research, as follows:

‘Firstly, that the interpretive belief does not often examine the external conditions which give rise to certain meanings and experiences. Secondly, that most research in interpretive paradigm omits to explain the unintended consequences of action. Thirdly, that the interpretive paradigm does not address structural conflicts within society and organisations, and ignores contradictions which may be endemic to social systems.... Finally, that the interpretive paradigm neglects to explain historical change; that is, how a particular social order came to be what it is, and how it is likely to vary over time.’

Another limitation emanating from the positivist tradition is the lack of generalisation of research findings. It is claimed that since reality in interpretive research is socially-constructed between the researcher and the research phenomena, findings from one context may not be easily transferred to an entire population (Yin, 1989). According to Walsham (1995b) indeed the generalisations of research findings are conceived differently from the positivist stance.

The nature of this study makes great effort to overcome some of the weaknesses pointed out by Orlikowski and Baroudi (1991). By design, one of the key objectives to understand the nature and characteristic of the SME e-commerce environment also incorporates an understanding of historical action, whether these are intended or not. The study therefore aims to investigate circumstances that lead to non-adoption, failure or discontinuation of the e-commerce process after the organisation has initiated the process of adoption as directed by top management of the firm.

3.2.5 The Critical Paradigm

The development of the critical paradigm has received less discussion from scholarly publications in comparison to the positivist and interpretive paradigms. The works of Klein & Myers (1999); Hirschheim & Klein (1994) and Myers & Klein (2011) provide substantive information regarding critical research. In the Critical paradigm, the main task is seen as being one of social critique, whereby the restrictive and alienating conditions of the status quo are brought to light (Klein & Myers, 1999). Critical research seeks to be emancipatory in that it aims to help eliminate the causes of unwarranted alienation and domination and thereby

enhance the opportunities for realising human potential (Hirschheim & Klein, 1994 cited in Klein & Myers, 1999, p.68). ‘To make this possible, critical theorists assume that people can consciously act to change their social and economic conditions. They do, however, recognise that human ability to improve their conditions is constrained by various forms of social, cultural, and political domination as well as natural laws and resource limitations (Klein & Myers, 1999).’

According to Myers and Klein (2011), three elements of critical research are outlined. These are: insight; critique, and transformation. In revisiting the topic almost after reviewing their paper on interpretive principles (Klein and Myers, 1999), the authors note that the critical paradigm is concerned with social issues such as freedom, power, social control, and values with respect to the development, use, and impact of information technology. Further, they claim that critical research can be very useful for IT professionals because it can enrich their understanding and improve practice. They also note that this paradigm can offer an avenue for IT professionals to discharge their social and ethical responsibilities more fully (Stahl and Brooke, 2008 cited in Myers and Klein, 2011).

Although there are several studies on e-commerce adoption in SMEs in extant literature, there are few that actually adopt the critical paradigm. Parker & Castleman (2009) are among the few researchers who have studied criticality. However, their work is mainly conceptual, providing a critical analysis of theory used in SME e-commerce adoption research.

3.3 Research Approach Consideration for this Study

3.3.1 Research Paradigm Consideration

Wyssusek, Schwartz and Kremberg (2003) state that the adoption of a paradigm is directly related to the interpretation of the information systems in the organisation. Therefore, it is the research questions that give an indicative direction of which research paradigm to follow (Chen & Hirschheim, 2004). This study’s research questions seek an explanatory investigation into the issues of e-commerce adoption as follows:

- i. What is the nature and characteristic of Botswana SME e-commerce environment?

- ii. What factors affect e-commerce adoption or non-adoption in Botswana SMEs?
- iii. How do the factors identified in (ii) above interact to determine the extent of e-commerce adoption in Botswana SMEs?

Based on the need to understand the contextual and natural setting affecting the SMEs in Botswana, the interpretive paradigm appears to be most appropriate. This is because the researcher is looking for ways of understanding how e-commerce is conceived, adopted and used, in the day-to-day business activities of an SME without changing any setting or manipulating any variables. This leads to the interpretive paradigm. In support, Klein & Myers (1999) assert that interpretive research can help IS researchers to understand human thought and action in social and organisational contexts; it has the potential to produce deep insights into information systems phenomena including the management of information systems and information systems development. Amongst the three paradigms, the interpretive paradigm appears to come closer to deeper meanings of social life (Walsham, 1993; pp. 4-5) in the adoption of e-commerce in SMEs.

3.3.2 Reasons for Rejecting Other Paradigms

Positivist Paradigm: This was rejected because the research questions are interested in explaining what happens in SMEs as managers make decisions to use e-commerce or not. Positivism asserts that an objective reality exists, even though it is well known that organisations are unique and are impacted differently by various factors within and outside the organisation. The social interactions that exist in B2B or B2C engagements may not be captured by generic and standardised data collection instruments. The subjective experiences of each actor in the SME are key issues that can explain how the contextual factors in the SMEs are represented (Walsham, 1995a; Oates, 2006, pp.285-286).

Critical Paradigm: This study carries some resemblance to the critical paradigm because by definition the critical paradigm also seeks to establish some socially-constructed meaning of e-commerce adoption process in SMEs. This has been noted as such as there are some similarities between interpretive studies and the critical paradigm (Effah, 2011). However, the nature of the critical paradigm that seeks to critique or resolve a social position on

understanding e-commerce adoption issues in SMEs renders it less appropriate for this research. The discussions with managers and key personnel in the organisations aim to unearth the natural position of the organisation, in their day-to-day experiences, as to why and how e-commerce is interpreted in their organisations.

It must be noted here that the rejection of the positivist and critical paradigm for their suitability to undertake this study does not imply that they are less superior or possibly that the selected interpretive paradigm is better than these (Walsham, 2006; Chen & Hirschheim, 2004).

3.3.3 The Ontological Position of E-commerce Adoption

The ontological position of e-commerce adoption has to deal with the issue of objectivity or subjectivity in the SMEs. The subjective view of the reality of e-commerce adoption and use is the assumed position in this study. This subjective view therefore proposes that e-commerce adoption and use in SMEs is affected by various contextual factors, which in turn, are derived from the social interactions with the internal and external processes in the SME environment. The interactions that humans have as they interact in the use of ICT and e-commerce and symbols or meanings they derive as individuals and groups (the social-political) will also be emphasised at the ontological level. Drawing from the interpretive paradigm, we examine the various types of social interactions between the researcher and various actors in the SMEs. The emphasis here are the subjective meanings that are derived as users (actors) make decisions and take choices for e-commerce development in their organisation.

The factors affecting e-commerce adoption may themselves change over time and are dependent upon other societal factors such as language, culture, and beliefs and other issues inherent in the business environment. Orlikowski and Baroudi (1991) add that interpretive researchers recognize that as meanings are formed, transferred, and used, they are also negotiated, and hence that interpretations of reality may shift over time as circumstances, objectives, and constituencies change.

In this approach, the possibility of an "objective" or "factual" account of events and situations is rejected, seeking instead a relativistic, albeit shared, understanding of e-commerce adoption factors in the SME environment (Klein & Myers, 1999; Orlikowski and Baroudi, 1991).

3.3.4 Epistemological approach

The interpretive philosophy is premised on the epistemological belief that rests on the understanding of the social process that takes place in a particular SME as the opportunity for e-commerce is being considered. In this paradigm, Rosen (1991), cited in Orlikowski and Baroudi (1991), states that the 'Social process is not captured in hypothetical deductions, covariances, and degrees of freedom. Instead, understanding social process involves getting inside the world of those generating it.' The 'every day social practices and the language used to describe them' (Orlikowski and Baroudi, 1991) will assist in understanding the factors that affect e-commerce adoption in the SME. As a researcher interacts with the organisations through formal and non-formal ways, an understanding of phenomenon is constructed. These are the social constructions of the realities of e-commerce in these organisations. Such constructions are not pre-meditated, but are naturally-occurring being birthed and enacted at the initial decision of initiating e-commerce adoption in the firm, and the subsequent changes in decision-making directed and enforced by senior managers.

3.3.5 Interpretive Paradigm and the Application of Theory

Aside from being concerned about a suitable research paradigm, the application of theory is another step towards soliciting quality in interpretive research (Walsham, 2006). Eisenhardt (1989) provides three distinct application of theory; 1) as an initial guide to design and data collection; 2) as part of an iterative process of data collection and analysis; and 3) as a final product of the research. The application of theory in this study follows after the second option by Eisenhardt (1989) to guide in a light manner (Walsham, 2006) the iterative process of data collection and analysis. In essence, the application of theory leaned more on the data analysis than the data collection as the researcher wanted to avoid the strict adherence to theory. Nonetheless, the use of theory has guided the development of the conceptual framework as explained in section 3.6.

The next section examines the methodological approaches in researching e-commerce adoption in SMEs.

3.4 Research Methodology

Methodological approaches in the interpretive paradigm will aim to devise practical ways of gathering information about e-commerce adoption and use in the SMEs. There are seven methodological approaches in interpretive studies (Oates, 2006; Avison and Pries-Heje, 2005). These are: Design and Creation, Experiments, Surveys, Ethnographies, Action Research, Grounded Theory, and Case studies (Avison and Pries-Heje, 2005). The following sub-sections describe each of these research methodologies and discuss their suitability to undertaking this study.

3.4.1 Design and Creation

This involves the development of a software product. This is not applicable to the current study that aims to understand the key factors in SMEs. Thus the methodology is dismissed.

3.4.2 Experiments

An experiment is a research methodology usually aligned to the positivist paradigm where standardised procedures are used to hold all conditions constant except the independent (experimental) variables (Ross and Morrison, 2004). Usually experiments take place in a specially controlled environment or laboratory (Kaplan and Duchon, 1988). The purpose of the current study is to understand real-life issues that motivate or hinder the development of e-commerce in SMEs. It would not be possible to hold any variable constant in a real-life or natural setting. The dynamics of ICT that impact on SMEs on a daily basis cannot be subjected to laboratory conditions as this would not depict a real-life situation that managers face. This methodology is dismissed based on these reasons.

3.4.3 Surveys

Survey research methodologies usually found in the positivist tradition, are conducted to advance scientific knowledge (Pinsonneault & Kraemer, 1993). The authors add that these are different from surveys which are a means of "gathering information about the characteristics,

actions, or opinions of a large group of people, referred to as a population" (Tanur, 1982 cited in Pinsonneault and Kraemer, 1993). Usually a standardised sample of questions is allowed to represent all aspects of the phenomenon being studied. The social interaction between the researcher and subjects of the research is usually non-existent. Surveys usually depend on statistical procedures to test hypotheses, aiming to generalise the findings (Oates, 2006). The nature of survey research as described above does not suit the objectives of this research. This is because this research requires deriving meaning from the social interactions between the researcher and the SME managers to unearth peculiar issues in their context. Generalisation of findings is a key feature of survey research. This study is premised on other types of generalisations, such as the theoretical propositions (Yin, 1989) and the research approaches (Walsham, 1995a, 1995b) that are typical of interpretive studies.

3.4.4 Ethnographies

Ethnographic research methodology is commonly applied in the interpretive paradigm whereby a researcher (known as an ethnographer) spends long periods of time studying people, their social life and culture (Lewis 1985, p.380; Avison and Pries-Heje, 2005). Ethnography is summarised by Myers (1999) when he states that it is one of the most in-depth research methods possible 'because the researcher is at the research site for a long period of time, seeing what people are doing as well as what they say they are doing.' This study resembles ethnography in that it aims to undertake in-depth studies in the SMEs. The exception is that the periods in ethnographic study are excessively long, and there is no social interaction between the researcher and participants of the researcher to explain what they are doing, how they are doing it and why they are doing it. This study derives socially constructed meanings that are gathered from interactions between the researcher and the participants. Thus, ethnography is dismissed.

3.4.5 Action Research

Action research has been defined by several researchers (Avison and Pries-Heje, 2005). Action research is an interventionist approach to the acquisition of scientific knowledge that involves collaboration between the researcher and the participating organisation (Rapoport,

1970, p. 499 cited in Avison and Pries-Heje, 2005). According to Blum (1955) cited in Roode (2007), action research can be explained by as a simple two stage process as follows:

- i. First, the diagnostic stage involves a collaborative analysis of the social situation by the researcher and the subjects of the research. Hypotheses are formulated concerning the nature of the research domain.
- ii. Second, the therapeutic stage involves collaborative change experiments. In this stage changes are introduced and the effects are studied.

The action research methodology requires a top-level commitment from participating organisations of their intention to embark on e-commerce developments. This is not suitable for this study as the SMEs have various strategic plans that may not incorporate e-commerce during the period of this study. The natural real-life situation is the primary aim of the current study and this condition cannot be satisfied by the interventionist perspective of the action research methodology.

3.4.6 Grounded Theory

Grounded Theory is a research methodology that was first proposed by Glaser and Strauss (1967) that seeks to develop theory that is grounded in data. There are four distinctive characteristics of the grounded theory as given by Urquhart, Lehmann & Myers, (2010) to assist a researcher. These are stated as follows:

- The main purpose of the grounded theory method is theory building.
- As a general rule, the researcher should make sure that their prior knowledge of the field does not lead them to pre-formulated hypotheses that their research then seeks to verify or otherwise. Such preconceived theoretical ideas could hinder the emergence of ideas that should be firmly rooted in the data in the first instance.
- Analysis and conceptualisation are engendered through the core process of joint data collection and constant comparison, where every slice of data is compared with all existing concepts and constructs to see if it enriches an existing category (i.e. by adding/enhancing its properties), forms a new one or points to a new relation.
- ‘Slices of data’ of all kinds are selected by a process of theoretical sampling, where the researcher decides on analytical grounds where to sample from next.

Based on the characteristics outlined above, this study could not be undertaken using grounded theory methodology because it is not theory building. Moreover, the second requirement that does not allow the knowledge of a phenomenon even before field work starts is at odds with this study. It is necessary for the researcher to understand what e-commerce is and be able to review literature to be able to examine the past and compare it with what is prevailing in the contexts of SMEs. However, there are some similarities with this study in upholding the qualitative stance just like in grounded theory (Urquhart et al., 2010).

3.4.7 Case Study

Previous studies have defined a case study variously. Miles and Huberman (1994, p.25) define a case as ‘a phenomenon of some sort occurring in a bounded context.’ According to Yin (1994, 2003), a case study research strategy is best suited to the following conditions:

1. To answer the ‘how’ or ‘why’ questions
2. When the investigator has little control over events
3. When the focus is on a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used.

Researchers have classified case study research into three categories: the positivist (Benbasat et al., 1987; Yin, 1994, 2003), the interpretive (Myers, 2009; Klein & Myers, 1999; Walsham 1995b, pp. 75-76), and the critical (Myers, 1994). A positivist case study is characterised by a priori research design (Yin, 2003, p.13), formal propositions, quantifiable measures of variables and hypothesis testing (Darke, Shanks, & Broadbent, 1998; Benbasat et al., 1987). An interpretive case study, on the other hand, does not require formal propositions or hypotheses (Orlikowski & Baroudi, 1991; Myers, 2009, p.76), but also has the strategy to answer the ‘how’ and ‘why’ questions (Walsham, 1995b) without putting any limitations on phenomena or the research subject. Thus, the interpretive case study does not require strict adherence to structured instrumentation (Orlikowski & Baroudi, 1991) and the use of validity and reliability as research evaluation criteria (Effah, 2011). A critical case study is similar to an interpretive case study, although the critical case study is emancipatory, and will

particularly aim to critique the status quo of social systems (Orlikowski & Baroudi, 1991), to bring some desired outcome or change (Haggerty, 2000).

A single or multiple case study research may be employed in any research paradigm. A single case study may be followed to ‘investigate research phenomena in depth to provide rich descriptions and understanding (Walsham, 1995b)’. A multiple case study is defined as such if more than one single case or context of research is used (Baxter & Jack, 2008). Thus, a ‘multiple or collective case study will allow a researcher to analyse within each setting or across settings (Baxter & Jack, 2008).’ One of the primary aims is therefore to observe similarities or differences in these cases or contexts (Darke et al, 1998). The authors further stated that the case study research is well suited to understanding the interactions between ICT related innovations and organisational contexts. The design strategy followed a multiple case study approach to provide in depth understanding (Walsham, 1995b) of e-commerce adoption factors in Botswana SMEs.

The same set of questions was used in all cases throughout the study to guide the discussion and also to prepare the interviewee. However, the researcher applied some flexibility in the way the inquiry was undertaken to allow for more interactions that could unearth the real circumstances prevailing in the organisations. This approach also provided a deeper understanding of the issues facing SMEs by being closer to the participants, and allowing interaction, rather than using a questionnaire survey which is distant and may not be particular about other characteristics relating to the SMEs physical and social environment. An SME owner manager, an IT manager, or senior personnel such as a Finance manager were typical persons that were designated to be interviewees.

3.5 Data Characteristics

3.5.1 Quantitative versus Qualitative data

Data characteristics for consideration in this study could either be quantitative, qualitative, or mixed (Myers, 1997), depending on the nature of the research questions raised. Quantitative responses were few and composed of numbers or numeric figures summarising such issues

like; “year organisation started”, “Number of employees in organisation”, the number of computers in the firm, and so forth. Most of the questions required qualitative responses that comprised words and groups of words, audio information, and photos or images. The words or text would be subjected to deeper analysis to obtain my own understanding and meaning of each SMEs understanding and interpretation of e-commerce adoption.

3.5.2 Data Collection Methods

Having chosen the research paradigm and research methodology, the next consideration was the data collection. Data collection for this study was done in several ways, namely: literature reviews, interviews, document analysis, website analysis, observations and business environment scanning. A brief explanation of these is as follows:

3.5.2.1 Literature review

A review of literature was undertaken to allow an appreciation of e-commerce adoption issues from past literature. In essence, the review of literature assisted in defining the context of the research (Boote & Beile, 2005), reviewing the scope of e-commerce in developing countries, theories that have been employed in previous literature, and highlighting the gaps that are prevalent in previous studies. Several sources were used such as the following: the University of Salford library, the University of Botswana library, and the Google search engine.

3.5.2.2 Interviews

An interview is a purposeful discussion between two or more people (Kahn & Cannell (1957) cited in Saunders et al., 1997, p.312). A special focus is on a qualitative interview. Fontana & Frey (2000) classified a qualitative interview into three categories as follows:

- ***Structured Interview:*** In a structured interview there is a complete script that is prepared beforehand. There is no room for improvisation. These types of interviews are often used in surveys where the interviews are not necessarily conducted by the researcher. The structured interview did not apply in this study.
- ***Unstructured or semi-structured interview:*** In an unstructured or semi-structured interview there is an incomplete script. The researcher may have prepared some questions beforehand, but there is a room for improvisation. The interviewer is the researcher or is

one of the research team. In this study, semi-structured face-to-face interviews were adopted in all the SME engagements. Questions were prepared in advance and sent to the interviewees prior to the date of the interviews to enable familiarisation with the contexts of the study. However, other questions were still allowed and the interviewee had more room to express their feelings relating to e-commerce adoption issues in their firm, and in relation to the local environment.

- **Group interview:** In a group interview two or more people are interviewed at once by one or more interviewers. This type of interview can be structured or unstructured. No group interviews applied to this study.

3.5.2.3 Telephone Interview

Telephone interviews or conversations were also brought-in to assist in clarifying some issues that were raised in the face-to-face interviews. In a qualitative study, Sturges & Hanrahan (2004) employed telephone interviews as a contingent measure when the face-to-face interviews could not be feasible and found no significant difference in their results.

All interviewees in this study agreed to be interviewed provided the name of the organisation would be concealed. Interview sessions were recorded on digital voice recording device and mobile phone voice recording facility. These were later uploaded into a PC for data management purposes using MS-Word and Nvivo.

Myers & Newman (2007) point out that though excellent techniques for gathering data may be suggested, the qualitative interview is not as straightforward as it appears at first sight. They outline some of the problems and pitfalls in the following points:

- **Artificiality of the interview:** The qualitative interview involves interrogating someone who is a complete stranger; it involves asking subjects to give or to create opinions under time pressure. In this study, time pressure did not contribute to the artificiality of the study as the researcher had to visit the organisation several times (up to seven times in one case) to obtain first-hand information or to obtain clarity about issues that were raised in the previous interviews.

- **Lack of trust:** As the interviewer is a complete stranger, there is likely to be a concern on the part of the interviewee with regard to how much the interviewer can be trusted. This means that the interviewee may choose not to divulge information that he or she considers to be “sensitive”. If this is potentially important information for the research, the data gathering remains incomplete. The repeated visits that were made by the researcher to contact and interact with the organisation earned some trust with key managers about the seriousness of this work. The researcher also mentioned at the introductory phase of fieldwork that this was a doctoral study and so top management attached some seriousness to the study and its requirements.
- **Lack of time:** The lack of time for the interview may mean that the data gathering is incomplete. However, it can also lead to the opposite problem – of subjects creating opinions under time pressure (when these opinions were never really held strongly initially). In this case more data is gathered but the data gathered is not entirely reliable. This study has been given adequate time for data collection.
- **Level of entry:** The level at which the researcher enters the organisation is crucial. For example, if a researcher enters at a lower level, it may prove difficult if not impossible to interview senior managers at a later date. In some organisations, talking to union members can bar access to management and vice versa. Additionally, gatekeepers may inhibit the researcher’s ability to access a broader range of subjects. The level of entry for each of the SMEs in this study included top management personnel, owner manager or general manager of the firm. This requirement is motivated from the desire to have key informants who are well knowledgeable about the firm and its business objectives (Thong, 1999), and the key decisions regarding e-commerce adoption in the firm. However, this also introduces some challenges as SME managers are usually busy people who may not like to devote valuable time to research issues at the expense of their daily business activities.
- **Elite bias:** A researcher may interview only certain people of high status (key informants) and thereby fail to gain an understanding of the broader situation. Elite bias concerns overweighting data from articulate, well-informed, usually high-status informants and, conversely, under-representing data from intractable, less articulate, lower-status ones. This condition was not encountered in this study although there was a deliberate effort to

allow only managers who were knowledgeable about ICT and e-commerce to represent the organisation.

- **Hawthorne effects:** Qualitative interviews are intrusive and can potentially change the situation. The interviewer is not an invisible, neutral entity; rather, the interviewer is part of the interactions studied and influences those interactions. The researcher may intrude upon the social setting and potentially interfere with peoples' behaviour. The effect was kept to a minimum in most cases.
- **Constructing knowledge:** Naïve interviewers may think that they are like sponges, simply soaking up data that is already there. They may not realise that, as well as gathering data, they are also actively constructing knowledge. In response to an interviewer, interviewees construct their stories – they are reflecting on issues that they may have never considered so explicitly before. Interviewees usually want to appear knowledgeable and rational, hence the need to construct a story that is logical and consistent.
- **Ambiguity of language:** The meaning of our words is often ambiguous, and it is not always clear that subjects fully understand the questions. 'Asking questions and getting answers is a much harder task than it may seem at first. The spoken or written word has always a residue of ambiguity, no matter how carefully we word the questions or how carefully we report or code the answers.'
- **Interviews can go wrong:** Interviews are fraught with fears, problems and pitfalls. It is possible for an interviewer to offend or unintentionally insult an interviewee, in which case the interview might be abandoned altogether. This condition did not affect the current study. However, other challenges have been discussed in section 7.3.

3.5.2.4 Document Analysis

Document analysis is a systematic procedure for reviewing or evaluating documents, both printed and electronic (computer-based and internet transmitted material) (Bowen, 2009). Documents, in whatever form, contain data relating to organisational policy plans, annual reports, and minutes of meetings that touch on aspects of Internet and e-commerce adoption in the organisation. According to Bowen, documents need to be interpreted in order to obtain meaning. A video presentation (obtained from C3Gamma) and sales information (collected from C1Alpha, and C5Home) are some of the documents that were obtained.

3.5.2.5 Observations

Direct observations are also made to the research site to uncover issues related to the study. These observations have been applied in undertaking website content analysis in the affected SMEs. Furthermore, the actual visitation to the organisations also necessitated observations to be made. In this study, the extent of appreciation of managerial use and the meaning that they attached to ICT and e-commerce issues was noted in the way the managers exclaimed or why they insisted on implementing a particular procedure in the use of Internet, e-mail or the website. Further, motivations and justifications for choosing a particular course of direction in the use of these ICTs gave a deeper understanding of the e-commerce adoption context surrounding the firm. These were cross-examined with the reality of e-commerce as observed on the firm's website on how orders and payments of products and services were undertaken, an account of day-to-day activities on firm's use of Internet and e-mail, and also the roles of personnel that undertook these tasks. Conversely, the lack of e-commerce activities included issues such as the reasons for delay in implementing some aspects of any of the following e-commerce activities: Internet search and communication, e-mail, website improvement or disappointment in a failed e-commerce initiative. Display of emotions in these scenarios signalled the extent of seriousness that management attached to such issues and ultimately to e-commerce adoption in general. Such observations were crucial to arrive at an overall position of the organisation towards e-commerce adoption.

3.5.2.6 Website Content Analysis

A website content analysis was undertaken based on Choudhury & Choudhury (2010)'s thirteen characteristics of e-commerce websites. Observed features were noted on SME websites such as C1Alpha, C2Beta, C3Gamma, C5Home, C6Lodge, and C7Panda. The content analysis was based on the following characteristics: 1) security, 2) appearance, 3) adequate information about products and services, 4) speed in downloading the pages, 5) navigation friendly, 6) search option/search engine, 7) hyperlinks to other information, 8) information on member facilities, 9) history and profile of the company, 10) ability to obtain information in a limited number of pages instead of browsing several pages, 11) option for providing feedback from customers, 12) visitor statistics, and 13) availability of interactive online activities.

3.5.2.7 Business Environment Scanning

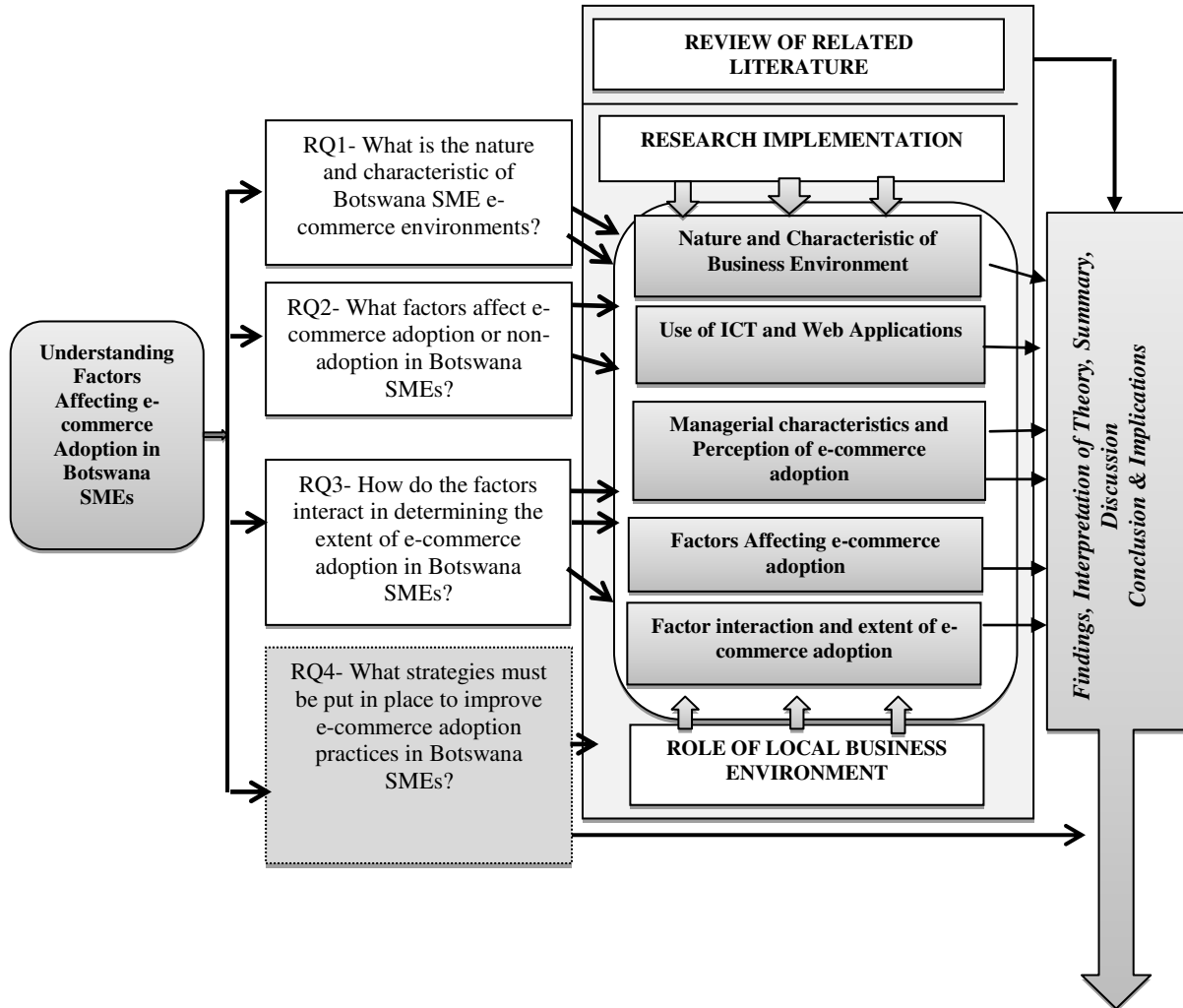
Data collection using business environment scanning has been performed by the researcher mainly through the attendance of the SME local conferences (2009, 2010) organised by the Local Enterprise Authority (LEA).

The next section provides the conceptual framework.

3.6 The Conceptual Framework and Its Development

Miles & Huberman (1994) state that a conceptual framework explains either graphically, or narratively, the main things to be studied taking into consideration the main factors, constructs or variables, and the presumed relationships among them. Figure 3.6 provides the conceptual framework which has been developed based on the extant literature related to the research questions.

Figure 3.6: The Conceptual Framework Revisited



Walsham (1993, p.71) argues that ‘a good framework should not be regarded as a rigid structure, but as a valuable guide to empirical research.’ The research aimed at studying the historical basis of ICT and e-commerce inception in the firm, how it progressed, and what factors contributed positively or negatively towards the current status of e-commerce in a firm. The aim was also to understand what the managers’ interpretation of e-commerce were in their environment, and how they made decisions for the actions they had taken, either in

favour of, or against e-commerce development. As a dynamic field, the study recognised the aspect of stability and change as the firm finds its position in e-commerce adoption (Pettigrew, 1987, 1990).

Based on the review of literature in the previous chapters and the research questions, a conceptual framework was developed to capture six broad categories that aimed to answer specific aspects of the research questions.

These are stated as follows:

1. The nature and characteristic of ICT and e-commerce in the SME (Cloete et al., 2002; Thong, 1999; Rao et al., 2003; Parker & Castleman, 2009; Wilson et al., 2008; Chibelushi & Costello, 2009),
2. The use of ICT and web-based applications (Bell & Loane, 2010, Olatokun & Kebonye, 2010; Quinton & Khan, 2009; Murphy & Kielgast, 2008),
3. The owner/manager characteristics and their perception of e-commerce adoption (Thong, 1999; Tarafdar & Vaidya, 2006; Molla & Licker, 2005a),
4. Factors that affect e-commerce adoption in SMEs (Scupola, 2009; Wilson et al., 2008; Daniel et al., 2002; Poon & Swatman, 1999),
5. How the factors interact to determine the level of e-commerce adoption (Brand & Huizingh, 2008; Molla & Licker, 2005a, 2005b), and
6. The role of the local business environment (Martinsons, 2008; Tarafdar & Vaidya, 2006; Demirbas et al., 2011).

A justification of the above categories is provided in the following figures that show the research question and how it is linked to each of the categories in the framework. Figure 3.6a shows literature that was derived from RQ1, and Figure 3.6b, literature that was derived from RQ2 and RQ3.

Figure 3.6a: Justification of Framework Categories- RQ1

RQ	Aspects of the RQ	Extant Literature	Factors/Issues identified
RQ1	The nature and characteristic of ICT and e-commerce in the SME	Cloete et al.(2002)	Owner's perception and acceptance of e-commerce, characteristics of organisation, the context to which the business finds itself
		Thong (1999)	CEO and IS innovation characteristics
		Rao et al.(2003)	SMEs are flexible, adaptive and innovative
		Parker & Castleman (2009)	Small firm idiosyncrasies
		Wilson et al.,(2008)	Skilled ICT personnel
		Chibelushi & Costello (2009)	SME owner or manager level of education, lack of strategy and perceived benefits in adopting new technologies, ICT investment, involvement in research, innovation and development
	The use of ICT and web-based applications	Bell & Loane (2010)	Internet and allied Information and communication technologies, World wide web
		Olatokun & Kebonye (2010)	Type of e-commerce technology adopted, low-level of credit card technology, lack of awareness about e-commerce
		Quinton & Khan (2009)	Generating web site traffic, proposes SEM tools for SMEs
		Murphy & Kielgast (2008)	High degree of heterogeneity in small firms, SEM popular but limited on strategic intentions
		Thong (1999)	Manager and IS innovation characteristics
	Managerial characteristics and perception of e-commerce adoption	Tarafdar & Vaidya (2006)	Top management, organisation culture, characteristics of IS professionals, organisation structure
		Molla & Licker (2005a)	manager perception of e-commerce

Figure 3.6b: Justification of Framework Categories -RQ2 & RQ3

RQ	Aspects of the RQ	Extant Literature	Factors/Issues identified
RQ2	Factors that affect e-commerce adoption in SMEs	Scupola (2009)	Chief executive officer (CEO)'s characteristics and managerial support are most significant in Denmark and Australian SMEs
		Wilson et al.,(2008)	Uses cluster analysis to derive five factors influencing e-commerce adoption in UK SMEs; top management support, management understanding of business benefits, presence of IT skills, availability of consultancy, and prioritisation of e-commerce. Adds perceived risk and customer demand to the list
		Daniel et al.,(2002)	Four distinct clusters of e-commerce adoption emerging in stages of adoption
		Poon & Swatman (1999)	E-mail useful, document transfer, perceived benefits
RQ3	How the factors interact to determine the extent of e-commerce adoption	Brand & Huizingh (2008)	Four determinants investigated include knowledge, potential value, implementation and satisfaction. These interact differently at the current level of adoption, and in future decisions
		Molla & Licker, (2005a)	Perceived e-readiness model to assess e-commerce managerial, organisational and contextual factors
		Molla & Licker, (2005b)	Interaction of POER(perceived organisational e-readiness and PEER (perceived external e-readiness) to determine e-commerce adoption
	The role of the local business environment	Martinsons (2008)	E-commerce influenced by personal trust, contextual and informal information, culture, blurred boundaries between business and government.
		Tarafdar & Vaidya (2006)	Relationships between organisation structure, leaderships characteristics and organisation characteristics determine the inclination to adopt e-commerce
		Demirbas et al.,(2011)	Development of effective government policies to support innovative SMEs

Data was collected over a period of fifteen months to obtain rich accounts of e-commerce adoption factors in the selected SMEs. Details of the research implementation process are presented in the next chapter.

3.7 Summary and Conclusion

This chapter introduced the philosophical issues relating to research in information systems and also discussed research methodology issues. The chapter began by introducing the well-known research paradigms. The positivist, interpretive and critical paradigms were reviewed in the general sense and later applied in the area of e-commerce adoption in SMEs. The latter sections of the study deliberated on the consideration of the research paradigm that was selected for this study. Based on various considerations from the research questions and the review of the literature, the interpretive paradigm emerged as most suitable to undertake in-depth studies in e-commerce adoption in SMEs.

Having chosen the suitable research paradigm, considerations were made on a suitable research methodology from amongst seven methodological approaches such as: design and creation, experiments, surveys, ethnographies, action research, grounded theory, and case studies. The discussions explain why some methodologies were not suitable for investigation in this study. The case study methodology emerged as the most suitable as it provides various means of responding to the research questions (Myers, 2009) and allowed a deeper understanding of the socio-technical issues in the e-commerce adoption process. The chapter also reviewed some classifications of the case study based on their research paradigm; such as the positivist, the interpretive, and the critical. The single case study research was also contrasted with multiple case studies, and subsequently, the motivation to undertake multiple case studies was explained.

The next section considered the characteristics of data that would be used in answering the research questions. The responses to the research questions inclined more to text, images and sound or audio messages than quantitative data. The data collection methods such as; the semi-structured and unstructured face-to-face interviews, telephone interviews or conversations, observations, document and website analysis, and the business environment

scanning, are explained and how they were applied in this study. The last section provides the conceptual framework that was developed to assist in the collection of data.

Chapter 4 Research Implementation

4.0 Introduction

This chapter concerns the practical implementation of the research study as outlined by the research questions. The first section deals with research planning issues; providing a background of the researcher's experience, the role of the researcher, and how these align with the study at hand. The section that follows discusses the ethical issues, time horizon, and the sampling method considered in this study. This is followed by discussions on issues of how cases were selected, the interviewing process and data collection procedures. An introductory section on the selected SMEs is provided, followed by a section on data analysis and interpretation of results. The principles for evaluating interpretive studies are reviewed, followed by an explanation on how contribution to knowledge is made, and the ethical considerations. The limitations encountered during the research implementation and measures to resolve them are provided before the summary and conclusion of the chapter.

4.1 Research Planning Issues

4.1.1 The Researcher's Background

The researcher's background is a key area of consideration with regard to subjectivity of the interpretive research. I majored in Mathematics and Computing at undergraduate level from University of Zambia in the school of natural sciences. The environment was largely governed by the positivist stance. The mathematical problems were solved in a straightforward manner by proving theories or providing a discrete number. These were positivist traditions.

I spent two years working as a programmer/analyst at the University of Zambia computer centre and later took up a position as a staff development fellow at another institution. The positivist traits were very visible then even though I knew little about it at the time as it was taken as the natural norm for understanding and solving systems development problems. The

scientific manner of developing programming software showed the traits of positivism. I studied for Master of Business Administration in Information Systems management at University of Hull (1995), UK. The final year project involved the development of a database application for Age Concern. I have continued to work as a lecturer for several years now. The most common paradigm for undertaking research at the current location in Botswana is positivism. There is a tendency to believe that those who have a statistical background can easily climb to higher levels of academic achievement. Most conferences that I have attended have shown a tendency towards positivism as most paper presentations and reviewers would look out for such traits in the conference papers. There's been a notion that qualitative papers are boring and do not show academic competence.

In 2004, I had an opportunity to work with poor and marginalised communities in a major project aimed at developing the National ICT policy for Botswana. Investigating information needs of the urban and rural poor, who in most cases are illiterate, provided an avenue to appreciate qualitative means of acquiring responses from research subjects.

In preparing for my PhD, I had the opportunity to interact with some colleagues internationally. One notable stance to appreciate the other paradigm was paved by a Professor of Information Systems at a conference in Cape Town in 2005, organised by the University of the Western Cape information systems department. It was here that I first learnt about grounded theory which looked like a whole new way of doing things. I also undertook some seminar courses as foundation courses for a PhD with the University of Pretoria and it was there that the 'mystery' of paradigms was fully unraveled. At the time of scouting to register for the PhD study at the University of Salford, I was surprised to learn that interpretive studies were well accepted for PhD studies. I have benefited a lot from interactions with colleagues at the postgraduate conference, the electronic media, and the student webmail.

In 2009 (alongside the PhD work), I also worked with the Institute of Money and Technology and Financial Inclusion (IMTFI), University of Irvine, USA, on a project to assess the value and uses of money amongst the poor in urban and rural communities, and what ICT can be

used to alleviate poverty in the communities. I've also had an opportunity to interact with researchers from backgrounds such as ethnography, anthropology and sociology, who understand issues of engagement with research subjects in interpretive contexts.

4.1.2 The Researcher's Role in this Study

Walsham (2006) acknowledges the difficult task of an interpretive researcher in 'accessing other people's interpretations, filtering them through their own conceptual apparatus, and feeding a version of events back to others, including in some cases both their interviewees and other audiences.' He explains two different roles that an interpretive researcher can assume: 1) that of an outside observer, and 2) that of an involved researcher, through participant observation or action research. Furthermore, Walsham emphasises that the researcher must have a view of their own role in the 'complex human process.' He argues that neither of these two roles should be understood to mean that there is an objective researcher, a situation that aligns with positivist research. In this study, both of these roles were instrumental but at varying times during the stage of data collection process.

- i. ***An outside observer:*** At the beginning of field work, the researcher drew insight from previous work by Rosen (1991) who states that to 'understand a social process, one need to get inside the world of those generating it.' The role of an outside observer was suitable here because it was meant to establish the meaning of e-commerce adoption with respect to the interviewee's perception and the organisation's perspective without any inference from an outside observer. These are crucial elements in the research questions. Another reason that resonates well with Nandhakumar & Jones's (2002) argument is not to allow the 'researcher's interests and impressions about e-commerce to clutter and misrepresent the interpretation of e-commerce adoption process in the organisation. Even during this process, it was possible to maintain 'close engagement' (Nandhakumar & Jones, 1997) with the research subjects, through the sharing of concepts relating to issues such as what the concept of e-commerce means to the organisation; how the idea of e-commerce was conceived and how it has developed over the years; what challenges the managers faced in facilitating an e-commerce strategy in the organisation, and other

consequences that came into the picture when the process of e-commerce adoption began. This close interaction between the researcher and the research phenomenon occurred reflectively over a long period of time, a situation described as ‘double hermeneutic’ by Giddens (1984). This approach was very beneficial in order to establish the facts about decisions that were made in the past about e-commerce in the firm. As well as being new to the organisation, the researcher aimed at establishing facts within the organisation without making the SME manager feel that they are being pressured to release company secrets or some guarded information.

- ii. ***Participant Observation:*** This role was accomplished in the follow-up phases of the data collection period. As the researcher called in to establish further engagements with the organisation, it was observed that the managers began to treat the researcher as one of their own, in so far as making suggestions on how the website could be improved for the purpose of attracting online consumers. Subsequently, the rapport and trust that had been won during the subsequent visits caused the managers to start viewing the researcher as one who was genuinely concerned with their organisation’s e-commerce issues; one who’d offer solutions, or make suggestions on what was needed to be done to improve their website features or social marketing activities.

Relying on the SME managers’ verbal descriptions of what they say they do (Geertz, 1973 cited in Walsham, 2006) was not sufficient in probing what SME managers meant about their e-commerce adoption activities and the challenges they faced. As Nandhakumar & Jones (1997) put it, ‘relying on actors verbal descriptions alone can lead to misinterpretation of what is said.’ The researcher had to rely on other means of understanding reality of e-commerce in the studied firms by gathering views from industry leaders as well on how firms were performing. This was also done with caution as the study still upholds the SME managers and senior personnel to be capable of describing e-commerce adoption issues well (Thong, 1999) without overly misrepresenting some accounts. The magnitude of how an organisation was affected was also noted in the recording, especially where the interviewee

made gestures, or ‘visual bodily movements of what was going on around them’ (Goffman, 1989 cited in Nandhakumar & Jones, 1997).’

4.1.3 Time Horizons

Time horizon relates to the period of contact with the research participants in the field. A snapshot engagement taken at a particular time would be defined as a cross sectional study, whereas a longitudinal study represents a situation where contacts with the research subjects takes place over a certain period of time (Saunders et al., 1997).

It was established in the literature review that the activities of engaging with ICT and e-commerce adoption in organisations require a long time of planning by management, users and other stakeholders in the local environment. A processual view of e-commerce adoption (Kurnia & Johnston, 2000) was thus chosen to allow for more time in planning for change and development. Thus, the researcher sought to interact with the SMEs for a long period of time, for purposes of learning and cultivating trust between the researcher and the interviewees. Moreover, the philosophical tenets of interpretive case studies that allowed for increased interactions between the researcher and the research subjects enabled a reflexive way of understanding the meaning of what SMEs were doing (Walsham, 1993; Orlikowski & Baroudi, 1991); what e-commerce meant to them; and more so, where the SMEs were going with e-commerce adoption.

4.1.4 Sampling Method

4.1.4.1 Purposive Sampling Method

A purposive or judgmental sampling method was chosen as a way of soliciting participation from SMEs. This method is chosen because the researcher has specific reasons that relate to the research question in the study (Tongco, 2007). Furthermore, it is based on these conditions that a researcher sets out to identify likely informants for the study. The researcher’s choice and judgment was used to select the SMEs. The researcher’s background in earlier studies with ICT and e-commerce issues at the national level was useful to find relevant contacts with the private sector.

At the beginning, a list of SME organisations was obtained from Botswana Chamber of Commerce and Industries (BOCCIM). This list was helpful as it had companies classified in each industry. In order to validate the existence of organisations on the BOCCIM list and to also solicit participation in the study, telephone calls were made to fifteen potential organisations to establish their physical location and willingness to participate. Each of the organisations were physically located and visited, and the researcher obtained permission to make an appointment with a key manager in charge of ICT in the firm (since e-commerce issues are generally undertaken by an ICT unit in most firms). For Botswana society, personal contacts are highly valued and they can determine whether one can successfully be trusted to engage with an organisation or not. The organisations so chosen would suit the characteristic of being able to provide such explanatory detail relating to the purpose of this study. From the minimum level of e-commerce adoption, a participating organisation needed to have adopted the Internet and e-mail applications to be able to participate. Another criterion included firms that had adopted the Internet, e-mail, and some website applications at some point in the past although they were not actively using these applications at the time of fieldwork. On the maximum level of e-commerce the researcher looked for organisations that could demonstrate some form of online buying and/or selling through their website or in combination with other ICT applications. Thus the selection of cases favoured a scenario that could represent SMEs from the minimum level of e-commerce adoption to any level as could be obtained from willing managers within the Botswana environment.

I contacted the responsible managers to explain the objectives of the research and to seek permission to undertake the study in their organisations. Consent was sought as to how long the interview would take and whether it could be recorded for further analysis. Interviews were scheduled for usually two hours duration but most interviewees were unwilling to commit this length of time claiming they were too busy with important issues. This appeared to be a drawback at the beginning of an engagement but with the passing of time, the key managers were very helpful in providing further access to their organisations in subsequent interview sessions. Subsequent interviews were more of follow-up, seeking clarification on

issues raised in previous sessions and also probing on any new developments related to e-commerce development in the firm.

Great effort was made to ensure that the rights and welfare of the respondents to this study were protected. Informed consent was sought verbally from each respondent. I explained to the participating managers of the need to sign a consent letter, indicating that they were free to participate or to withdraw from the study at any time. The data protection component explained that the data collected would be confidential, and kept by the researcher for research purposes only, and not be revealed to any third party persons. It also stated that the data and information collected from the study would be kept by the researcher for six years and thereafter disposed of. The consent letters were written in English as the researcher expected that most SME managers were conversant with basic English (a sample is attached in the Appendix B2).

4.1.4.2 Choice of Industry

The choice of industry aligned with national development goals that are aimed at diversifying the economy of the country and reducing the over-reliance on diamond mining (IMF, 2007). The researcher focused on three industries; ICT, Tourism, and Manufacturing to provide an in-depth understanding of e-commerce adoption factors. These industries have already been introduced in section 1.2.3, although it suffices to summarise their significance in the study. The ICT industry provides ICT infrastructure and services to the public and the private sector. Thus, the researcher assumed that e-commerce adoption issues in this industry could provide some significant insights that can contribute to IS knowledge. The Government of Botswana is the biggest employer in the ICT sector (Maitlamo, 2004). The tourism industry, comprising hospitality, culture and travel industry utilises a lot of ICT to link up with tourists from within and outside Botswana. The manufacturing industry in this study comprises firms that manufacture foam products, bricks and concrete, and vehicle covers.

4.1.4.3 Number of Cases to study

This study was chosen to investigate e-commerce adoption issues in SMEs. Extant literature about SMEs and ICT was useful to guide the exploration of participating SMEs. The study by

Duncombe and Heeks (1999) and the National ICT policy document (Maitlamo, 2004) indicate the basic nature of ICT use in Botswana SMEs. The studies also report that SMEs are more accustomed to establishing business relations through informal means rather than using ICT. Therefore, nine case studies, from each of the industries were selected. This number of cases is within the range from four to ten cases for in-depth analysis as recommended by Eisenhardt (1989).

The objective of this study has not been to generalise the findings (Mehrtens et al., 2001) but rather to provide an explanation of the natural development of e-commerce in SMEs, specifically; how and why SMEs use Internet and e-commerce, what factors influence the extent of e-commerce adoption, and how the interaction of factors determine the extent of e-commerce adoption in the firms.

4.2 Data Collection Procedures

Data collection and data analysis were overlapping, to allow early analysis (Huberman and Miles, 2002). This took a period of fifteen months, from September 2010 to September 2011, and from November to December 2011.

4.2.1 The Interview Process

Semi-structured and unstructured face-to-face interviews formed the main key method of interacting with the SMEs. The need for interaction gives first-hand interpretation regarding the firm's purpose and position regarding e-commerce (Nandhakumar & Jones, 1997). Thus it was necessary that a key informant would be an owner or top manager who was knowledgeable about ICT and e-commerce initiatives in their organisation. Most informants were able to meet this criterion except in three organisations (C1Alpha, C8Estate, and C9Autoco) where some top managers in the firm could articulate business issues well but were not adequately able to explain ICT issues in their firm. In such cases, the information so gathered was critically analysed with the opinions of the more knowledgeable manager in the firm.

A sample of the questions that were developed after the review of literature was sent in advance to allow the interviewees to be familiar with the research questions and what was expected of them. These questions have been provided in Appendix A. The questions were asked in an interactive manner that allowed the informant to describe various issues in their organisation.

The first category of questions focused on the nature and background of the organisation: the size, location, number of employees, the type of ICT being used and on what activities, the type of Internet connection, whether the organisation had a website, and reasons for developing these services, and the reasons why, if they did not apply. Issues that relate to the mission and business objectives, culture, and structure, were probed as well as managers and their educational background, their interest in growing the business and where they were leading the firm.

The second category of questions related more to the use of Internet, e-mail and web technologies and the extent of their use. In linking up with the first set of questions, I was interested in knowing the relationship between the business objectives and the organisation's Internet and website development. This would build up to questions that related to benefits and challenges of using Internet and web technology where applicable. I also interacted with the interviewee in such a way that we were at the same level in the understanding of what e-commerce is, without making them feel uncomfortable or uneasy. This level of investigation naturally evolved into the third category of questions. The third category of questions focused on the challenges that an SME was facing in using Internet and web technology, and an effort to understand how these challenges had emerged in the firm. A comparison of the corporate website was used to frame questions that related to their contents and their purpose. I was also able to probe into the external local and global environment and what role they played in the SMEs pursuit of e-commerce. However, questions were not asked in the exact order as listed in Appendix A, as the researcher depended on keeping a systematic flow of discussion. Answers to RQ3 were also intuitively derived through the integration of literature, company reports and the responses and analysis of all research questions.

A summary of the interviews undertaken is presented in Table 4.2.1.

Table 4.2.1 Summary of Interviews Undertaken				
SME	Phase I	Phase II	Face-toface Interviews	Telephone Interviews
C1Alpha	General Manager (2), Buyer (1),	General Manager (2)	5	4
C2Beta	General Manager (1), IT Manager (1) Systems Administrator (1)	General Manager (2), IT manager (2)	6	5
C3Gamma	Chief Operations Manager (2), Finance Manager (1)	Chief Operations Manager (2), Finance Manager (2)	7	4
C4Teq	Managing Director (2) IT Manager (1)	Managing Director (2)	5	3
C5Home	Managing Director (2), Finance Manager (1)	Managing Director (1),	5	3
C6Lodge	Managing Director (2), Finance Manager (1)	Managing Director (1),	4	2
C7Panda	Managing Director (2),		2	
C8Estate	Managing Director (1), Finance Manager (1)		2	
C9Autoco	Human Resource Manager		1	
Total			37	21

During Phase I (as shown in Table 4.2.1), the number of interviews undertaken with each manager is shown in brackets. Follow-up interviews have been categorised as Phase II, as the researcher inclined to unstructured type of questions which aimed to establish ‘why’ or ‘how’ certain decisions regarding e-commerce adoption were made. The total number of interviews for both Phase I and Phase II was thirty-seven (37). Three firms were unable to participate in Phase II due to various reasons that are explained in section 4.2.5, and other relevant sections of this thesis. A total of twenty-one (21) telephone interview conversations were conducted to clarify issues with the interviewees in the first six SMEs (C1Alpha, C2Beta, C3Gamma,

C4Teq, C5Home and C6Lodge). The firms C7Panda, C8Estate, and C9Autoco were unable to participate in telephone interviews.

Most interviews were digitally-recorded although in some cases, the recording was interfered with, and sometimes the manager had disapproved of this undertaken. An *informed consent form* and *data protection agreement* were signed and retained by the interviewee and the researcher. All face-to-face and telephone conversations were personally undertaken by the researcher as required by interpretive case studies. The researcher also took note of some highlights and pointers during the interview and telephone conversations for deeper analysis about their meaning in the context of the SME under study. Keeping the flow of the interview was very important so as not to distract the interviewee during the interview process. The data collection from interviews ended when it was felt that no new information was being generated from information obtained from subsequent interviews (Patton, 2002, p. 246). Summaries of notes taken from each interview were written into a Word processor within 24 hrs of the interviews (Walsham, 1995b), and also Windows Media player for some images, and photos. The recorded interviews were also uploaded into Nvivo with an aim to make further analysis of the data. It was later learnt that Nvivo could not make critical analysis of the data, thus the application only served the purpose of managing some of the data.

4.2.2 Document and Website Analysis

I also kept a diary analysing the pattern and activities of the SMEs based on the information provided from their website. This would relate to investigating the website content, its purpose and its status in relation to e-commerce adoption. For SMEs that did not have a web presence, other documents such as marketing materials and CD-ROMs were obtained to analyse relevant information relating to the nature and e-commerce adoption decisions in the firm. In pursuing an understanding of e-commerce non-adoption, it was necessary to include circumstances of inactivity in the application of an ICT application such as a corporate website, as the reasons and root-causes of these situations formed valuable inputs to the understanding of e-commerce adoption in the organisation.

4.2.3 Direct Observation

I also kept a diary of notes and impressions that I gathered whilst visiting the SMEs in their locations. Observations were usually made during and after the formal interview period. On occasions, some observations were made during unplanned visits so as to understand how the firms worked without the feeling of being observed. Issues observed would relate to the general statements that the managers made in relation to e-commerce application in the firm, the ease of answering the questions and possible direction about future plans of e-commerce adoption in the organisation.

4.2.4 The Local Business Environment Scanning

I also made contact with the business community by attending the local annual SME conferences that have been held in 2009 and 2010, noting issues relating to local SMEs and e-commerce adoption plans in their firms. Field notes were gathered from key stakeholders in ICT and Tourism sectors. This information was useful in understanding the depth and origin of factors affecting the SMEs at the national level. Issues of setting the boundary of the unit of analysis (Miles and Huberman, 1994, p.25) also touch on the need to appreciate the business environment.

The researcher prepared a summary report for each organisation at the end of fieldwork and sent it to the organisations for them to make comments and give feedback. Five of the SMEs were able to provide feedback except managers for C7Panda, C8Estate, C9Autoco, and C6Lodge.

4.2.5 Introductory Preview of the Selected Cases

Each of the SMEs that participated in the study was unique in managerial structure as well as in the manner of ICT use for e-commerce development. Generally, interviewees were reluctant to release financial information for public consumption. However, some confidential information in this regard was provided by C1Alpha and C5Home for analysis purposes only. A general preview of the SMEs is presented here:

4.2.5.1 C1Alpha

C1Alpha is a small tourism firm with 35 employees. It is one of the pioneering firms in Botswana in developing an active website. The main reason for its selection into the sample is because it provides unique social-technical experiences that SMEs undergo in the development of e-commerce. C1Alpha has been known to be one of the purveyors of e-commerce in Botswana. The general manager, Neela, was the key informant who provided first-hand information about C1Alpha in three main interview sessions. I was also able to informally interact with her during lunch to clarify some issues. I also had an opportunity to interview one of the buyers, Nomsa, who has been to the rural Etsha village in Maun (over 900 km from C1Alpha's location in Gaborone) where the women-weavers work and live. However, for most parts of engagement during the study, Nomsa could not participate as she was not in a decision-making role of the firm. There was also no other person who could represent the position of e-commerce in the firm other than the general manager, Neela, herself.

4.2.5.2 C2Beta

C2Beta is a medium-sized ICT firm in the heart of Gaborone with 110 employees. C2Beta was chosen for the study because it had developed a website and being in the ICT sector that usually provides ICT infrastructure and services; I presumed that there were some explanations and lessons to be learnt regarding e-commerce development in the firm.

4.2.5.3 C3Gamma

C3Gamma is a medium-sized ICT firm that has existed since 2000. It has 68 employees. Its managerial structure comprises both local and foreign nationals. Its fast-paced growth in the ICT sector and the development of a website provide a unique dimension in the process of SME e-commerce adoption.

4.2.5.4 C4Teq

C4Teq is a small-sized ICT firm that has existed for about ten years. It has 23 employees. C4Teq represents an e-commerce development process that may take unexpected turns as management makes decisions in the best interest of the organisation. Its inclusion in the

sample provides some unique lessons in the understanding of e-commerce adoption process in Botswana SMEs.

4.2.5.5 C5Home

C5Home is a small-sized tourism firm that has existed since 2001. Its rural location and desire to keep abreast with useful ICT for tourism business provides a learning point for e-commerce in the tourism sector. The managing director, Tumelo and the business manager, Nicky, were the key informants during the fieldwork process.

4.2.5.6 C6Lodge

C6Lodge is a small-sized tourism hotel that has existed for about ten years. With its close proximity to Gaborone, C6Lodge was expected to lead in e-commerce development but unexpected managerial challenges such as staff leaving for greener pastures and lack of dependable personnel at managerial level, have curtailed its use of ICT application. Its inclusion in the study thus provides another unique dimension in the understanding of e-commerce adoption in Botswana SMEs. The managing director, Pitso, was the key informant for the organisation.

4.2.5.7 C7Panda

C7Panda is a medium manufacturing firm that manufactures foam products, mainly for the South African market. At the beginning of the study, the firm was categorised as small, but it developed so rapidly to a medium type of firm. One informal and another formal interview were undertaken with the owner/manager. Follow-up interview appointments could not be honoured by management. However, the findings gathered from the earlier interviews have been judged as satisfactory because management believed that the information that needed to be gathered had already been relayed to the researcher. Thus, C7Panda's case will be available for presentation, analysis and discussion in the subsequent chapters.

4.2.5.8 C8Estate

C8Estate is a small manufacturing firm that manufactures housing products such as bricks for consumption in the local market. Face-to-face interviews were done with the managing director and a finance manager of the firm. Further interview arrangements with the firm

could not be established as management gave similar reasons that adequate information had been relayed to the researcher and so there was nothing new that could be gathered from future interviews. Therefore, information about the case is judged satisfactory and will also be available for presentation, analysis and discussion of findings.

4.2.5.9 C9Autoco

C9Autoco is a small manufacturing firm that manufactures car products such as canopies for trucks and vans. All preparatory plans for fieldwork were done with the general manager. However, a human resource manager, Jenny, was brought in as an informant at the time of the interview. It was not possible to establish follow-up meetings and telephone interviews with the general manager thereafter. Owing to this, the thesis only presents the research findings in Chapter five and limited discussions in Chapters 6 and 7 for C9Autoco as the researcher believes that rich insights (Walsham, 2006) of e-commerce adoption as a process could not be established in the case. However, one of the principles for interpretive case studies as explained by Klein & Myers (1999) and Walsham (1995b) requires that these accounts be explained as they are regarding the circumstances in the firm.

A summary of the general characteristics of the SMEs is provided in Table 4.2.5.

Table 4.2.5: Profile of SMEs in the study

Name of Company	Year established	Industry /Business	Number of Employees	Position of Interviewee	Level of education
C1Alpha	1970	Tourism	35	General Manager Buyer	BA degree GCE Certificate
C2Beta	1970	ICT	110	General Manager Head of IT Systems Administrator	BSc degree Higher Diploma BSc, MSc IT
C3Gamma	2000	ICT	68	Chief Operations Officer- IT Finance Manager	BSc Degree ProfessionalAccounting
C4Teq	2001	ICT	23	Managing Director (owner) IT Manager	MBA BSc IT
C5Home	2001	Tourism	26	Managing Director (owner) Business/Finance Manager	BA Accounting degree BA degree
C6Lodge	2001	Tourism	38	Managing Director (owner)	BA degree
C7Panda	1996	Manufacturing	154	Managing Director (owner)	BCom, MBA Marketing
C8Estate	2004	Manufacturing	61	Managing Director (owner) Finance Manager	BCom, MBA
C9Autoco	1999	Manufacturing	18	Human Resource Manager	BA Human Resource

4.3 Data Analysis

In interpretive case studies, the processes of data collection and data analysis usually occur simultaneously even though they are explained sequentially (Walsham, 2006). This study draws from previous studies (Klein & Myers, 1999; Walsham, 2006; 1995b; Miles and Huberman, 1994, Myers, 1994) to systematically analyse the data. Miles and Huberman (1994, p.10) define analysis as consisting of three concurrent flows of activity components: data reduction, data display, and conclusions drawing/verification. The information that I obtained from the semi-structured face-to-face interviews, telephone interviews and conversations, audio and video analysis, direct observation, website content analysis provided a basis for further analysis. A summary of each of these themes as given by Miles and Huberman (1994, p.10-12) is presented:

4.3.1 Data Reduction

Data reduction refers to the process of selecting, focusing, simplifying, abstracting and transforming the data that appear in written up field-notes or transcriptions. The process occurs continuously throughout the life of a qualitative study. In the current study, data reduction began in 2008 and has run continuously until the completion of this study. In the case of field-work, I presented a verbal summary to the interviewee as preliminary feedback after each interview and later summarised these into a table that showed the research questions in the columns and the interviewee in the rows. Thus each of the interviewee's response and comments were tabulated based on the research question. The last column in each of these was used to make my own impressions. I provided feedback to the organisation of what my understanding of the organisation's actions and decisions were regarding e-commerce adoption or non-adoption in their firm.

4.3.2 Data Display

Data display is the second major flow of activity which is defined as an organised, compressed assembly of information that permits conclusion drawing and taking action. This may involve the use of matrices, graphs, charts and networks to help to assemble organised information into a compact format for further interpretation by the researcher (Miles & Huberman, 1994, p.12).

4.3.3 Conclusion Drawing and Verification

From the start of data collection I drew conclusions of what things mean, in noting regularities, patterns, explanations, possible configurations, causal flows, and propositions (Miles & Huberman, 1994, p.12). The authors point out that the three types of analysis activity and the activity of data collection form an interactive cyclical process. The researcher steadily moves among these four 'nodes' during data collection and then shuttles among reduction, display, and conclusion drawing/verification until the completion of the study (Miles & Huberman, 1994, p.12).

Within each case, field notes and scripts were organised to highlight what the managers said about 'what e-commerce was' and 'what it meant in the organisation.' Furthermore, the field

notes and scripts were also organised to illuminate any similarities and differences (Miles & Huberman, 1994, p.12) in responses from various informants in the organisation. Where there was only one manager (such as in C1Alpha and C7Panda), the responses that the manager gave at different times were followed through to understand where the SME was and where it wanted to go in pursuing e-commerce. Guided by the conceptual framework, I categorised themes in terms of the following dimensions; the nature and business characteristics of the SME, the use of ICT and web-based applications, managerial capability and perception of e-commerce adoption, the factors affecting e-commerce adoption or non-adoption, the most critical factors that encourage adoption (known as drivers) and those that discourage adoption (known as barriers), and the role of the local business environment.

In cross-case analysis, Miles and Huberman's (1994) method of contrasts and pattern clustering was employed to produce matrices. I analysed cases in pairs, then in groups of industries, to look for similarities and differences emerging through the data (Miles and Huberman, 1994). The dimensions for analysing data were not limited to the six as defined in the conceptual framework but extended forth to include issues that were emerging in the data. New findings that emerged through the analysis were captured and compared with industry information that had been obtained from industry stakeholders.

The process of analysis and making comparisons from the text and observations occurred in a hermeneutic circle until valuable information that related to the purpose of the study and the research questions were collected. In highlight, the researcher questioned the perception of e-commerce as viewed by some of the managers in the firms. In some cases, a manager's view of the e-commerce status in the organisation did not always align with the status of the organisation's website. In such circumstances, the researcher resolved such contradictions by comparing texts, and views from other managers, and other general information obtained from observations to arrive at a plausible position of the organisation's status. Some of the issues that have emerged have been incorporated in the discussion of results in Chapter 6.

I had intended to complete data analysis using Nvivo8 but it was later dropped because it was not able to make some analytical comparisons. I finally resorted to employing Miles and Huberman's (1994) concepts and my own insight and creativity (Walsham, 2006; Walsham, 1995b) to see more meaning in the text, images and audio information that I had collected.

4.4 Principles for Evaluation of the Study

Researchers have recommended that interpretive case studies be evaluated with appropriate measures for them to be widely accepted and appreciated in the wider research community (Myers, 2009, p.82; Klein and Myers, 1999). The following sections provide three criteria for evaluating interpretive case studies: 1) Principles for conducting and evaluating interpretive field research outlined by Klein and Myers (1999), 2) Contribution to knowledge synthesis, and 3) Ethical consideration issues.

4.4.1 Principles for Conducting and Evaluating Interpretive Field Research

The process of inquiry followed Klein and Myers (1999) set of principles, which are as follows: i) The fundamental principle of the hermeneutic circle, ii) Contextualism, iii) the interaction between the researcher and the research subjects, iv) abstraction and generalisation, v) dialogical reasoning, vi) Multiple interpretations, and, vii) Suspicion. These are discussed in the following:

4.4.1.1 *The Fundamental Principle of the Hermeneutic Circle*

The Fundamental Principle of the Hermeneutic Circle is the first principle and the cradle of interpretive research on which other principles are also built. This principle states that we come to understand the complex whole from pre-conceptions about the meaning of its parts and their interrelationships (Klein and Myers, 1999; Myers, 1994). *'The movement of understanding is constantly from the whole to the parts and back to the whole* (Gadamer, 1976b, p. 117 cited in Klein and Myers, 1999). In relation to this study, the understanding of e-commerce adoption in the SMEs was flexibly applied in two dimensions. The first dimension related to how each specific SME deployed ICT and e-commerce technology in the general sense. These aspects have been covered in the nature and characteristics of SME e-commerce environment. In order to understand the meaning of e-commerce adoption in

each of the SMEs, it was necessary to explore the whole ‘SME’ so that constituent parts could be understood. This was accomplished by interviewing key individual managers and SME owners to understand how their decisions on e-commerce adoption were made, what factors accompanied these decisions, and why e-commerce developments could be justified in their organisations. The iterative nature of the process thus ensued throughout the period of field work; in the interaction between the researcher and individual managers, and also for a particular SME in its own context, to provide an understanding of the factors affecting the e-commerce adoption process. The hermeneutic aspect was also employed in the review of related literature on SMEs and e-commerce adoption to aid in answering the research questions. Further, all artifacts of e-commerce adoption as defined in this study such as; the use of e-mail, the Internet, and the SME websites were incorporated into the hermeneutic pool to aid in drawing meaning of what occurred in the organisations.

4.4.1.2 The Principle of Contextualism

The principle of contextualism requires critical reflection of the social and historical background of the research setting so that the intended audience can see how the current situation under investigation emerged. The application of contextualism in this study was performed in three ways: the individual case of e-commerce adoption, the local Botswana environment context, and the developing country context. In each of the individual cases, the understanding of the social and historical background of the SME was undertaken to construct meaning of how these e-commerce environments emerged. Thus it was necessary that key informants were knowledgeable of the SME and its objectives as well as e-commerce developments in the organisation. The process of understanding the two phenomena, SME and e-commerce developments required continuous evaluation during the period of the research. Thus specific times were sought to enter the organisation for purposes of understanding ‘what e-commerce means’ in their natural and historic contexts. Further, the nature and characteristic of an SME dictates the type of e-commerce that they can adopt. Each SME in the study adopted a particular position based on contextual circumstances, regarding the scope, magnitude and breadth of e-commerce.

Another dimension of contextualism involved the local Botswana environment as a whole and how the social and economic issues in the country impact on local SMEs. These were discussed in Chapter 1 and later, Chapters 4 and 5 provided a contextual understanding of the social and historic background of each of the SMEs and how e-commerce developments unfolded in each circumstance. The Botswana business environment is very small in comparison to other neighbouring countries in the region such as South Africa. It therefore introduces certain peculiarities that can only be obtained in this local environment. For example, the very small nature of the economy leads to certain factors in the business environment such as the reliance on the government of Botswana as a business partner (NICT Policy, 2007; Mutula & van Brakel, 2007). In this study, any thriving e-commerce activities are largely financed, directly or indirectly, by the government of Botswana. In the tourism firms (C5Home, C1Alpha, and C6Lodge), the GOB, through its subsidiary BTO, provides an enabling environment, and thus it is indirectly involved. The GOB is also a major client for firms such as C5Home and C6Lodge. The ICT SMEs (C2Beta, C3Gamma and C4Teq) are also largely influenced by the government of Botswana to provide a regulatory environment and also act as a major business partner. In such circumstances, the particular business model that an SME may follow may be dictated by management's interest, the GOB, and a consideration of several factors within and external to the organisation.

The other area of context involves the region of Southern Africa that encompasses Botswana. Documented research on ICT and e-commerce adoption in developing countries of Southern Africa has been less than in developed countries or regions. This study therefore provides a contribution in this regard.

4.4.1.3 The Principle of Interaction between Researcher(s) and Subjects

This principle requires a critical reflection on how the data was socially constructed between the researcher and the research subjects. Interactions were achieved in several ways, such as; face-to-face semi-structured interviews between the researcher and the SME managers, informal meetings with managers to plan for further meetings, lunch-hour discussions and follow-up telephone conversations. These interactions occurred in a hermeneutic circle to allow the researcher and the participants to be part of the historic perspective of the SME and e-commerce developments. Thus the social interactions enabled the researcher and the

subjects to see themselves as interpreters and analysts even as data or 'shared meanings' were being generated in the discourse. Further, the shared meanings are imbedded in the researcher's background of beliefs to interpret the findings of the various social interactions, a concept often criticised in the positivist tradition (Effah, 2011; Vorakulpipat, 2008).

A purposive or judgmental sampling method was chosen as a way of selecting companies to participate. The researcher's choice and judgment was used to select the SMEs. The researcher's background in earlier studies with ICT and e-commerce issues at the national level was useful to find relevant contacts with the private sector. At the beginning, a list of SME organisations was obtained from Botswana Chamber of Commerce and Industries (BOCCIM). In order to validate the existence of organisations on the BOCCIM list and to also solicit participation in the study, telephone calls were made to all potential organisations to establish their willingness to participate. The organisations so chosen needed to suit the characteristic of being able to provide such explanatory detail relating to the conception of e-commerce, its development and how it has been defined in the current position of the SME. From the minimum level of e-commerce adoption, a participating organisation needed to have adopted Internet to be able to participate. Another criterion included firms that had adopted Internet at some point in the past although they were not using the website at the time. This was necessary in order to trace issues in the development process rather than just at the end. On the maximum level of e-commerce the researcher looked for organisations that could demonstrate some form of online buying and/or selling through their website or in combination with other ICT applications. Thus the selection of cases favoured a scenario that could represent SMEs on a continuum, from the minimum level of e-commerce adoption to the highest level as could be obtained within Botswana. The final list of SMEs that emerged consisted of SMEs that chose to spare time to participate despite their busy schedules and those that value research and its purpose, and were willing to participate in the study based on the minimum requirements.

4.4.1.4 The Principle of Abstraction and Generalisation

The principle of abstraction and generalisation requires interpretive case studies to relate unique instances gathered in the fundamental principle of the hermeneutic circle and the

principle of contextualism into general concepts or theories that depict the nature of human understanding and social action (Vorakulpipat, 2008; Klein and Myers, 1999). Interpretive case study research has been frequently criticised because of claims that its findings may not be widely applied to other settings (Tellis, 1997). Walsham (1995a) presents four types of generalisation in interpretive case studies: development of concepts; generation of theory; drawing of specific implications in particular domains of action; and contributions of rich insights. The author further notes that these types of generalisations are not mutually exclusive.

This study provides rich insights of the experiences of eight SMEs (C1Alpha, C2Beta, C3Gamma, C4Teq, C5Home, C6Lodge, C7Panda and C8Estate) in the development and understanding of e-commerce adoption in a developing country context. As already mentioned, each of the eight cases is a narration of the nature of e-commerce adoption and what factors affect the decision to adopt the technology. Another generalisation involves the specific implications in the adoption of e-commerce in Botswana SMEs. Each of the SMEs has undergone unique moments in the conception of e-commerce, defining it in their own way based on the prevailing circumstances in their firm. The lessons learnt in the process of e-commerce adoption in these SMEs are valuable tools of comparison for organisations in other contexts of the world. As Bryne & Sahay (2007) commented '*IS are not just about the end product but also about the process by which they come into being and are redefined over time.*'

4.4.1.5 The Principle of Dialogical Reasoning

The principle of dialogical reasoning requires the researcher to confront his or her preconceptions (prejudices) that guided the original research design with the data that emerges through the research process. Further, the principle also suggests that the researcher should make the historical intellectual basis of their research as transparent as possible to the reader and herself. Several revisions have been undertaken which are discussed as follows:

- The researcher began with the desire to understand the factors that affect e-commerce adoption in SMEs with a preconception that most SME websites in Botswana were

actively engaged in e-commerce for income generation. This was not the case at the time fieldwork began, so the definition of e-commerce was adopted to fit the developing country environments as described by Jain & Jain (2011) & Humphrey et al., (2003). This change in focus caused the researcher to redefine the understanding of e-commerce adoption in Botswana SMEs not as end in itself but also as a means to accomplishing goals for an organisation through the various processes. The research questions for the study were thus modified to reflect this shift in focus.

- Another aspect that necessitated the change in emphasis is the definition of e-commerce for this study. Since e-commerce is a phenomenon that is defined differently by various scholars depending on the scope and context of analysis, it was necessary that the definition suits the developing country context of Botswana. For example, e-commerce in this study has been defined as the process of buying, selling, transferring, or exchanging products, services, and/or information based on the following prevailing conditions in developing countries: 1) that Internet and e-mail are easily available in these contexts and will be used to communicate business transactions, and/or 2) the use of the World Wide Web (in short, the web) to enhance business activity (Turban, King, McKay, Marshall, Lee, & Viehland, 2008). This definition therefore accommodated minimum conditions for e-commerce adoption in organisations as well as individual consumers in the urban or rural areas of developing countries. On the other hand, the definition also accommodated firms that were transacting at a high level using website functionalities such as online orders, payments, and some web 2.0 functionalities (Bell & Loane, 2010; Scupola, 2010; Hong & Zhu, 2006). Thus, the definition allowed e-commerce adoption to be viewed at the contextual level of developing countries such as Botswana and at the same time taking a global view as the ultimate goal for external markets.
- There was a shift in focus in the number of cases that were targeted for the study. Originally, the researcher had planned to cover nine cases but three cases, C7Panda, C8Estate, and C9AutoCo, had been presenting some challenges regarding further

follow-up. Thus, the researcher had decided to abandon these cases from further fieldwork as they were unable to comply with the requirement for follow-up interviews. C7Panda had been keen to participate in the study but the tight schedule of the manager made it difficult to secure further investigations. However, the manager's view was that there was nothing new to learn from the future interactions that were being requested for as he felt that pertinent issues relating to the study had already been relayed. Other managers in the firm had not been released to participate in the research. C8Estate also felt that they had participated enough in the study by providing two interview sessions with the researcher and thus they reasoned that no new information would be gathered from follow-up interviews. The owner manager and the finance manager participated in the study. C9Autoco could not abide by the follow-up arrangements because of the tight schedule of the manager. Later, during evaluations of this study, it was resolved that all information that was gathered in these three SMEs was valuable although the richness of the information was not desirable according to the researcher's perspective. The final presentation of the results now incorporates all the nine cases although the rich insights may be observed in the first six SMEs, and relatively brief accounts in C7Panda, and C8Estate. The last case, C9Autoco had very minimal interactions with the researcher.

- I had planned to analyse the data using the RBT combined with Contextualism as an overarching theory. However, some retrospective analysis could not defend this idea as it appeared to be motivated from the deterministic and objectivist perspective of the positivist tradition. Therefore, all e-commerce adoption theories as reviewed in section 2.4 were employed to analyse the case findings in the selected SMEs.
- I had also planned to use Nvivo 8, a software package for data analysis based on previous literature on interpretive studies. This was later dropped when it was learnt that the application could not assist in making iterative analysis of the various narratives obtained from the informants. I therefore employed personal analysis of data, comparing and reflecting on the themes that were being raised in the cases, making a

variety of integrated analysis to derive meaning from the data as guided by Miles & Huberman, 1994).

4.4.1.6 The Principle of Multiple Interpretations

The principle of multiple interpretations requires the researcher to examine the influences that the social context has upon the actions under study by seeking out and documenting multiple viewpoints along with the reasons for them. In this study, multiple viewpoints were held by managers in their understanding of what e-commerce adoption means to them. For example C2Beta and C3Gamma have interpreted e-commerce adoption to suit their respective environments, and not as perceived from the popular world view of doing online transactions using organisational websites.

In three of the cases, there were multiple understanding of what resources existed and how they were interpreted among the managers. Follow-up field-work was undertaken to understand why such differing views existed or why they were perceived to be so. For example, in the case of C4Teq, Dennis (the managing director) had narrated that they were unable to maintain the website due to high costs in maintenance of Internet facilities, whereas, the IT Manager narrated that the main reason was the shift of business focus for the organisation to concentrate more on the local service delivery that did not require an active website. In such issues, it was observed that both reasons were applicable to the case except that they applied at different periods of time in the firm. The interpretation of the senior manager was more applicable because he had been working in the firm throughout its existence and was directly affected by these issues, than the IT Manager who had spent only few months in the firm.

This study provides empirical evidence that understanding e-commerce adoption and the factors that influence managers' decisions, is not a concluded matter as has been suggested by some studies (Chitura, Mupemhi, Dube & Bolongkikit, 2008). Rather, we see another dimension of understanding factors that affect e-commerce adoption process by immersing oneself into the affairs of an enterprise to understand why managers make certain choices regarding the phenomenon. The study therefore answers the call to come closer and interact

with an enterprise by undertaking semi-structured face-to-face interviews with SME managers. The researcher interacted with all managers by conducting semi-structured and unstructured interviews at the SMEs location. More interactions followed through telephone conversations to provide clarification on issues raised in previous interviews. Furthermore, other means of understanding e-commerce development in the firm were incorporated using direct observation, document and website analysis, and analysis of the external business environment of the SMEs. Since all researchers world-wide agree that the dynamism of ICT is a forever moving projectile (Karakaya & Shea, 2008), it does imply therefore that the subject may not necessarily come to a close. In fact, this leads us to employ other approaches that can assist to understand the phenomenon better. This study sets an example in a small landlocked under-developed country in Southern Africa. The interpretation of the results needs to be understood alongside the context of the study and the research approach undertaken. The study therefore offers a particular emphasis on peculiar contextual issues that affect e-commerce adoption in SMEs as opposed to blanket statements that conclude issues of e-commerce adoption in an abrupt manner. It is not expected that similar results may surface in other contexts due to the different research approaches and understanding about research phenomena that motivate researchers. Thus, researchers may take time to situate themselves in the phenomenon and context of their study to undertake the process of e-commerce adoption.

4.4.1.7 The Principle of Suspicion

The principle requires sensitivity to possible biases and systematic distortions in the narratives collected from participants. In this research, SME managers were the primary informants of the process of e-commerce adoption in their organisations. As such suspicion was not generally observed.

4.4.2 Contribution to Knowledge

According to Koch (2006) the trustworthiness (rigour) of an interpretive study 'may be established if the reader is able to audit the events, influences and actions of the researcher.' A distinguishing mark of any good research including those that lead to PhD is the contribution to knowledge (Walsham, 2006).

Research contribution refers to whether a particular piece of work contributes to human knowledge (Walsham, 1995b). Myers (1997) points out that a good indicator of interpretive research is that it must offer a contribution to the IS community in relation to whether the researcher has developed a new concept, a new theory or applied an existing theory in a new or unique way. Moreover, Walsham (2006) adds that such interpretive research adds more value when there is revelation of how the work has been carried out from inception to publication. Myers (1997) also suggests that another indicator of good research is if it offers rich insights into the human, social, and organisational aspects of IS development and application or if it contradicts conventional wisdom.

4.4.3 Ethical Considerations

Walsham (2006) notes that interpretive studies in IS often involve ethical tensions and issues. Even so, he further argues that literature in IS has not fully reached an acceptable level for guiding researchers on ethical issues. The author discusses three areas of concern with regards to ethical issues and tensions: confidentiality and anonymity, working with the organisation, and reporting in the literature. With respect to confidentiality, the author suggests that the names of the interviewees and the positions they hold in the organisation must be kept confidential. Walsham also notes that organisations have increasingly become sensitive to information that is reported about them. He suggests that the real name of the organisation must not be disclosed in research outputs to prevent readers from making leads in identifying the participating organisation.

With respect to working with the organisation, Walsham (2006) notes that there is usually some ethical tension when carrying out the actual field work. He notes that there is often a gap that exists between the expressed purpose of the research, in written or verbal form, and the broader agenda of the field researcher. As most management are reluctant to discuss political and internal conflicts in the firm with an outside researcher, Walsham notes that this creates some ethical tension of whether to include such sensitive topics at the beginning of the research or engagement with the organisation. Another ethical tension within the organisation regards reporting 'bad news' about local staff to senior management. In some cases, there are

fears of creating tension in the organisation when the main purpose was merely to undertake research. The author suggests that it is better to relay bad news in phases, or what he calls 'sugar the pill', or to soften the feedback in a way that suggests that the organisation could take up some opportunities rather than focus on its current challenges. Overall, Walsham advises that the onus is on the researcher to exercise good moral behavior about handling the truth even when it's bad truth, than to go all out to disclose it as it may hurt a lot of people, the organisation or even threaten further progress in the research being undertaken. Finally, Walsham suggests giving 'bad news' in a presentation or workshop than describing it in a written report.

The third ethical issue that Walsham discusses is about reporting in the literature. He notes that this surfaces when undertaking work with practitioners from the organisation being researched on or from organisations that fund research work. In this case, the practitioners may not want a negative image of their organisation to be published with the names of the authors on the published work. Although Walsham appreciates this, he laments the moral dilemma of reporting the truth against what should be contextually accepted. Another ethical issue concerns the relationship between the author and the sponsoring organisations. He notes that conflicts arise when the sponsoring organisations do not agree with the researcher's interpretation of the study. He advises that under such circumstances, researchers are not obliged to achieve full consensus with the sponsoring organisations or organisation informant, although he claims that writing must be done in such a way as to avoid giving unnecessary pain to the stakeholders.

With the above discussion, Walsham notes that interpretive IS researchers are bound to perpetually experience ethical dilemmas, although he stresses that there is no direct solution to addressing these issues. This study draws upon the recommendations made by Walsham to address and evaluate ethical issues encountered in this research. Examples of the ethical issues as applied in this study are given in section 7.4.

4.5 Methodological Limitations

Undertaking an interpretive qualitative study introduces a lot of pain and heartache to the researcher in particular those that are introduced during the data collection stage. Keutel and Mellis (2011) add that methodological issues affecting interpretive IS researchers have rarely surfaced in literature. It must be noted that whilst the planning can be done to allow the interview process to run smoothly and in a real-life setting, some challenges are still bound to surface. Some of the challenges I encountered during the administration of field work are highlighted, and the ways that I undertook to resolve them.

The lack of appreciation for research activities by some SME managers prolonged the research process. In some cases this lack of appreciation resulted in interviewees failing to honour appointments. I found it difficult to change to another organisation all together because I had already gathered rich information from a top manager in previous interview sessions. I resolved to persist as advised by Walsham (2006) rather than to insist. I discovered that with time, the SMEs became more familiar with my requests such that they were more willing to attend to my study requests. I also resorted to making telephone conversations and e-mail to clarify certain issues that were not clear during the face-to-face interview.

Some managers were not familiar with the data collection procedure and the time required for the interviews even if this had been communicated and agreed upon prior to the study. Indeed, undertaking of fieldwork depends to a large extent on the researcher as well as the participating organisations whose commitment to the study may be affected by circumstances beyond their control.

The situation of three cases, C7Panda, C8Estate, and C9Autoco is narrated below:

C7Panda: C7Panda had participated in the first interview although the manager's time schedule was so tight that he could not attend the interview for a period longer than an hour. Moreover, the researcher had also undertaken an informal interview in the preliminary stages of the study. Thus, the managing director assumed that the researcher had gathered enough information about the firm. Further attempts to schedule follow-up interviews were greeted

with this kind of response from the managing director, such as; *'I have given you all the information that you need to know about e-commerce in our company, what else do you want to know?'* The researcher was also unable to secure telephone conversations with the managing director as he declined based on the same reason.

C8Estate: In the case of C8Estate, two managers participated in the first set of interviews. However, it was not possible to secure follow-up meetings because the managing director believed that there were no new issues to learn other than what had been narrated in the previous interview sessions.

C9Autoco: For C9Autoco, the scenario was rather different. The researcher had done preliminary introductory sessions with the general manager of the firm. On the day of the actual interview, another person, a human resource manager, was brought in as an informant as the general manager had to attend to an urgent matter elsewhere. Follow-up arrangements with the general manager could not be secured.

The lengthy process of conducting such a study can be time-consuming and costly. Molony (2006), in their Tanzania study, lamented the difficulty of collecting data in an African environment. Such issues were not fully envisaged in the planning stage of the research strategy. To obtain some credibility with the data that is being generated, interpretive studies often rely on multiple interpretations of the phenomenon under investigation (Klein and Myers, 1999). This condition often applies to much larger organisations that have various roles of users participating in IS. This situation may not be very appropriate in certain contexts due to the limited nature of ICT applications in the firms, such as in SMEs. Nonetheless, the criterion can still be enforced by relying on a key or owner manager who is knowledgeable about e-commerce issues in the firm. In C1Alpha for example, the only knowledgeable manager that could offer some information about e-commerce was the general manager for C1Alpha. The rest of the staff assisted with non-ICT activities in the firm, and there were no other personnel at the decision-making level who understood ICT and e-commerce activities that well. The researcher tried to engage a buyer as an informant, but the

person was unable to discuss issues related to e-commerce as they were unfamiliar with the topic.

4.6 Summary and Conclusion

This chapter has provided details of the research methodology, with data analysis being in a summarised format. Section 4.1 explored the foundation of undertaking this study by first providing a background of the researcher and her role in this study. Some explanations on the time span and sampling method being employed have been provided. The chapter later provides some details of the data collection procedure, beginning with the interview process, and then followed by the document and web content analysis, direct observation, and analysis of the local business environment. An introductory preview of the nine participating SMEs is given, with details of some methodological challenges. The next section explains how data analysis was achieved, mainly by utilising Miles and Huberman's (1994) approach and the researcher's reflexive and analytical skill to derive meaning from the data. Klein and Myers (1999) principles for evaluating interpretive studies were reviewed and applied, followed by a discussion on contribution of knowledge, and the ethical considerations. The chapter ends with a section on the methodological limitations that were encountered during the data collection process and the measures that were taken to overcome them.

The next chapter will now focus on specific case findings from the field work.

Chapter 5 Presentation of Case Findings

5.0 Introduction

This chapter provides my own construction of the SMEs perspective of e-commerce adoption in the selected six SMEs based on the findings from the interaction I had with them. This is presented based on the conceptual framework which seeks to answer the research questions based on six broad categories. The categories are: the nature and business characteristic; use of ICT and Web Applications; managerial characteristics and perception of e-commerce; factors that affect e-commerce adoption or the lack of it; how the factors interact in determining the level of e-commerce adoption in the firm, and the role of the local business environment with respect to each of the SMEs. Each of the cases is presented with a summary and conclusion of its findings. The following are the SMEs as introduced in the previous chapter: C1Alpha, C2Beta, C3Gamma, C4Teq, C5Home, C6Lodge, C7Panda, C8Estate, and C9Autoco.

5.1 C1Alpha

5.1.1 The Nature and Characteristic of Business Environment

C1Alpha was established in 1970 by the Botswana Development Corporation (BDC) to develop the rural-based handicraft industry of the country. A key objective was to assist rural Botswana women to find a market for their basketry and other handicrafts, and thereby provide a source of income for their sustenance. In 1993, C1Alpha became a private organisation and it is now a large exporter of arts and crafts products in Botswana. The business was mainly focused on the shop at the beginning, showcasing various traditional products but in recent years, C1Alpha has expanded to two more units, a restaurant and conference centre. There are thirty-five employees that assist in carrying out C1Alpha's business mandate. Most of the buyers of C1Alpha's handicrafts buy the products from the shop. The government of Botswana is the biggest buyer, followed by some private firms and

a smaller portion is from individual tourists who visit the firm physically and those who buy online mainly from the United States of America.

Adding to the uniqueness of their products, C1Alpha claims to contribute to preserving Botswana culture by maintaining a gallery that showcases the local women weavers who are the designers of most of the baskets and artwork being sold in the shop. For ethical purposes and to protect the privacy of individual weavers, the artwork has not been disclosed. The gallery also stocks some products that are sourced from neighbouring countries such as South Africa, Namibia, Zimbabwe and others. Another business facility at C1Alpha is the *Courtyard restaurant* that provides traditional and exotic meals to the public especially those that visit the shop. The conference centre facility is another option for generating income for C1Alpha. Some traditional activities are also held to raise awareness and educate the public about the history of Botswana.

5.1.2 Use of ICT and Web-based Applications

Of the three departments operating at C1Alpha, the use of computers is mainly in the shop; assisting with the point of sale system. This, however, is not connected to Internet. C1Alpha has been using a DOS based system to run their point of sale system but there is desire to change to a Windows based system as there are problems of compatibility when storing information using the old storage devices. The delay in changing over, according to Neela, has been due to the:

‘lack of finance and specialised ICT personnel who can implement this change for us.’

C1Alpha began online business around the year 1999. The reason for developing the website was to meet the needs of the foreign tourists who are unable to travel to Botswana but could access information about traditional Botswana artifacts on the Internet. The company has a local presence (.bw) through a Botswana Internet Service Provider (ISP). An international .com presence had been in existence in USA until late 2010 when this option ceased. Neela explained that before the global economic recession in 2008 and 2009, business transactions generated through C1Alpha’s website accounted for 30% of all company sales, but she stated

that the sales dropped down tremendously and that they had now started to improve as follows;

‘after the recession, sales dropped to less than 5% and sometimes even lesser but this has started to improve again. We now have up to 10% of sales generated through the website.’

C1Alpha has advertised some of the arts and crafts products. The online store shows some of the items that are displayed in the gallery, such as basketry, with prices indicated alongside each item. Further, it provides information for viewers who want to proceed to make a purchase. Other than the baskets and bowls that are marketed on C1Alpha’s website, there are also San crafts, also known as Bushman crafts. There are also books and various traditional items on Botswana culture and its history, being marketed on C1Alpha’s website. These items may also be purchased physically from the shop.

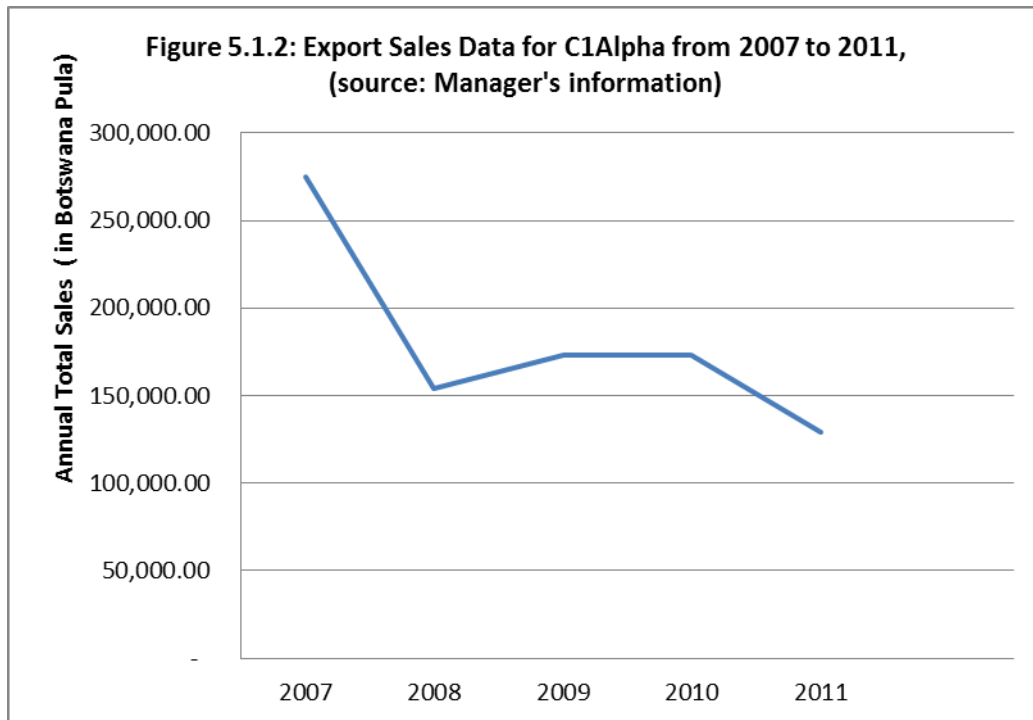
Customers accessing C1Alpha’s website can view some of the products on their website and may opt to complete the business transaction through email and later pay through normal banking methods such as electronic funds transfer (EFT) or by credit card. The purchased item is later dispatched by express courier to the buyer. Still then, Neela would like to assure her clients of the social element of *trust* that can be embedded in the online transaction, as she explained:

‘The experience of my boss some years back is that people like the individual touch, they would like to be able to communicate, get to know you slightly in a way, rather than just staying on the website, filling in an order form....

All our orders that we’ve had so far, have results from e-mails that I can quote. Well, there’s an option that they can click on the website if they want ten of these, or whatever number they choose, but they don’t do that...

So even people who are re-ordering, they would rather email first, chat a bit and then go to place an order. I guess they are a bit hesitant because they don’t know Botswana that well, and if they do, possibly they may not know C1Alpha.’

Some information was also obtained regarding the yearly turnover of exports at C1Alpha. Figure 5.1.2 shows a sharp decline in export sales for the period 2007 to 2011 due to the global recession that began in 2008. The results for 2011 did not include the month of November and December, 2011, hence the low figures.



C1Alpha has started marketing its products on Facebook and Neela noted that other markets such as Japan, the UK and rest of Europe have started to respond by sending inquiries. The manager suspected that the influx of mails could have been due to the new channel of social networking.

A website content analysis based on 13 characteristics of an e-commerce website as suggested by Choudhury & Choudhury (2010) shows the following in Table 5.1.2. A tick (✓) indicates the presence of a feature on the website and a blank indicates the absence of a feature.

Table 5.1.2: C1Alpha's website features (Adapted from Choudhury & Choudhury, 2010)	
Feature	Evidence in the Case
1. Security	
2. Appearance	Satisfactory
3. Adequate information about products and services,	√
4. Speed in downloading the pages	Very slow
5. Navigation friendly	√
6. Search option/Search engine,	
7. Hyperlinks to other information	√
8. Information on member facilities	
9. History and profile of the company	√
10. Ability to obtain information in limited number of pages instead of browsing several pages,	√
11. Option for providing feedback from customers	√
12. Visitor statistics	
13. Availability of interactive online activities	√

The security feature on C1Alpha's website has not been fully implemented as the firm completes transactions offline through bank-related transactions. The option for providing feedback is highly depended-upon as a means of obtaining further inquiries about the products and business transaction details. Hyperlinks are provided to connect to women weavers, who are the main designers and manufacturers of the traditional artifacts that C1Alpha sells. Thus, there are no visitor statistics that are being captured through the firm's website. Interactivity through a social networking site such as Facebook has been activated as well.

5.1.3 Managerial Characteristics and Perception of E-commerce

Managerial characteristics and perception are a key resource from the conceptual framework that can impact positively or negatively in the adoption of e-commerce at C1Alpha. Neela explained the managing director's position, by saying that:

'My boss is very enthusiastic about Internet and what it can do for C1Alpha. He's very keen to try out and discover new ICT innovations.'

At the organisational level, Neela's educational background adds a positive dimension to the management of C1Alpha, giving it strategic direction in the application of Internet and e-commerce. There is evidence of enthusiasm in the knowledge and utilisation of email, Internet, and social media applications that can boost C1Alpha's business outlook. However, such enthusiasm was somewhat lacking among other staff in the organisation.

5.1.4 Factors Affecting E-commerce Adoption

Neela explained the need to develop e-commerce in the firm but lamented the lack of skilled ICT personnel, as she explained that;

'C1Alpha has a desire to further develop its e-commerce offerings but at the moment it is difficult as there is no one person dedicated for this task'.

At the beginning of fieldwork in September 2010, the only products that were displayed on C1Alpha's website were baskets but later in the year, other products were included such as San crafts, books about Botswana culture and music CD's.

Neela had explained that *time* was a key factor in the development of e-commerce as she had to take up this role besides other responsibilities of managing the business. Another constraint that Neela lamented about was *slow speed of Internet*. In one of the interviews, she explained that:

'Internet speed is still very slow and the cost of maintaining Internet is high for us.'

She later disclosed that on average, the annual rate was about Botswana Pula 2000 (slightly less than £200). A key challenge for the development of e-commerce at C1Alpha is how to meet the salary demands of skilled ICT personnel who could focus on further website improvements. Thus she hoped for improvement in the business sales so that e-commerce issues could pay for an additional *staff with ICT expertise*. Further, the *lack of funding* for e-commerce projects was another factor impeding website improvement for C1Alpha. It was not the intention of management to seek other sources of finance. Thus, in summary, the factors affecting e-commerce adoption at C1Alpha based on the TOE framework are the following:

1. Technological:
 - Slow speed of the Internet
2. Organisational:
 - Manager enthusiasm and perception of e-commerce
 - Available e-mail and Internet services
 - Active website with payment instructions
 - Owner/Manager educational background
 - Time to devote to website development
 - Cost of setting-up and maintenance (lack of funding)
 - Lack of ICT skill and expertise
3. Environmental:
 - Government role
 - Customer/buyers
 - Suppliers
 - Economic recession
 - Lack of support from local industry firms

The analysis shows that there are more significant organisational factors that drive e-commerce adoption than factors that hinder it at C1Alpha. The findings in this case are

similar to findings by Molla and Licker's (2005a; 2005b) study in developing countries who found that at the initial level of e-commerce adoption, organisational factors impact more than environmental factors. However, the results contrast somewhat with Molla and Licker's statement that once an organisation has initialised e-commerce, subsequent challenges to e-commerce adoption are less technological in nature. In this case, technological issues still pose as serious barriers to e-commerce adoption in the firm despite some depth in the appreciation of e-commerce at C1Alpha.

5.1.5 How Factors Interact to Determine the Extent of E-commerce Adoption

Picking up from the factor identification in the previous section, this section evaluates the interaction of the factors in determining the extent of e-commerce adoption at C1Alpha based on the findings from the nature and characteristic of e-commerce, the use of ICT that is related to e-commerce adoption in the firm, interviewees responses and analysis from the researcher's point of view. Table 5.1.5a, developed from this study, summarises the interaction of factors in determining the extent of e-commerce adoption at C1Alpha.

Table 5.1.5a:Factor Interaction and Extent of E-commerce Adoption at C1Alpha

Factor	Effect of Factor on SME	Type of Factor	Extent of Interaction
Active website with payment instructions	Allows online consumers to view and place orders of products and services	Driver	High
Time to devote to website development	Slightly affects manager's attention to website management issues.	Barrier	Low-Moderate
Owner/Manager educational background	Assists in decision making ability of firm, understanding of business needs, and providing strategic direction	Driver	High
Manager enthusiasm and perception of e-commerce	Affects firm positively by trying out various e-commerce options on the market	Driver	High
E-mail and Internet services	Provide communication between the manager and business partners	Driver	High
Cost of Setting up and Maintenance (lack of funding)	Affects firm's ability to improve e-commerce activities. Have not sought external funding.	Barrier	Moderate
ICT Skill and Expertise	Affects e-commerce adoption as such skill is not available although desirable.	Barrier	High
Lack of support from local industry firms	Affects interaction for e-commerce support.	Barrier	Low-Moderate
Government Role	Indirectly affected: 1. Mainly through IT regulation. E-commerce legislation not fully functional. 1. brings tourists to C1Alpha who buy from the shop	Barrier Driver	Low-Moderate Moderate
Customer/buyers	Online buyers impact on e-commerce adoption decisions and strategic direction of firm.	Driver	High
Suppliers	Local and regional weavers from provide the baskets, other art and craft items.	Driver	Moderate
Economic recession	Affected the sales of crafts from US Tourist.	Barrier	Moderate

The results of the table also show that despite notable barriers impacting on the firm from the external environment, C1Alpha manages to contain or cushion such barriers by employing valuable organisational resources from within and also outside the organisation. A combination of high drivers from within and outside the organisation provides a great impetus

for development of e-commerce at C1Alpha. This is similar to findings by previous studies that stress an integrated approach to understanding e-commerce adoption in firms (Alonso-Mendo & Fitzgerald, 2005; Molla & Licker, 2005b). As illustrated in Table 5.1.5a, high drivers that are also recognised as critical factors for development of e-commerce at C1Alpha are the following:

1. Manager enthusiasm and perception of e-commerce
2. Active website with payment instructions
3. Owner/Manager educational background
4. Customer/buyers

The other factors, although important depend on what decisions the managers have taken. Another key to success in e-commerce is the established market in the US. The resultant position of the firm is therefore to forge ahead with e-commerce activities with the aid of strong leadership skills that reside in the organisation, and ICT expertise for web hosting. Furthermore, the success of C1Alpha is also captured by turning moderate or high barriers and challenges in the firm into solutions. Drawing from Jarvenpaa & Leidner (1998), the following shows the key barriers and how the firm responded to them, in Table 5.1.5b.

Table 5.1.5b: Barriers and Example responses by C1Alpha	
Barriers	Solutions in the firm
ICT Skill and Expertise	Obtains ICT skill and expertise from outside the firm.
Cost of Setting up and Maintenance (lack of funding)	Increase in offering entertainment and other traditional functions to widen its income base
Time to devote to website development	Slightly affects manager's attention to website management issues.

The most difficult barriers were those at the moderate and high level, yet the firm has managed to bypass them as described in Table 5.1.5b.

5.1.6 The Role of the Local Business Environment

The role of the local business environment provides some aspects of social interactions that can stimulate positive developments towards e-commerce adoption at C1Alpha. It was learnt that the business generally relied on 'word of mouth' to market the various art and craft work to tourists who visit the shop, and the traditional functions, as was observed years back in the study by Duncombe & Heeks (1999). The only difference is that in recent years, the types of social networks that have become prevalent are those at the individual level, influenced by the restaurant and conference centre clients.

Neela explained that C1Alpha receives some assistance from a sister company's resources in terms of strategic business direction and some useful informal consultations in ICT usage. However, this did not directly impact on e-commerce adoption decisions in the firm. The attitude of certain personnel in local policy firms had demotivated Neela from seeking assistance about e-commerce issues. With regard to industry activities, C1Alpha does not belong to any industry association that could boost its e-commerce development. The government of Botswana assumes dual roles of being a major buyer of C1Alpha's handicrafts and at the same time takes up responsibility in policy regulation, through the Botswana Telecommunications Authority.

5.1.7 Summary of Research Findings at C1Alpha

C1Alpha is a small tourism firm which was re-organised as a private firm in 1993. Its main business activities are to sell art and craft products, and also to promote traditional Botswana culture through art exhibitions, music shows, and various other activities. The nature of e-commerce adoption at C1Alpha can be described as follows:

- i. The use of e-mail for communication to global clients of the firm, defined as B2C or B2B.
- ii. The use of Internet and corporate website for marketing its products and services. Corporate or individual consumers who access their website are able to identify the goods they want but need to communicate using e-mail about their intentions to buy. This may be described as B2C or B2B e-commerce.

- iii. Once the consumer is satisfied of a safe transaction, they place orders through e-mail but with reference to items that exist on the website. Cash payments are facilitated through credit card by traditional banking methods or electronic funds transfer.

Since communication is the main thread that sustains the link between C1Alpha and its clients, the types of e-commerce being represented above are the socially-inclined B2C, B2B, and mobile commerce.

The socially-inclined e-commerce that prevails in the C1Alpha environment is a unique feature that the organisation has pursued. It is socially-inclined because it hails from cultural beliefs that promote honest and trust in e-commerce transactions. It takes particular interest in exploring the buying behaviour and interests of the clients to avert fraud and other mal-practices in the e-commerce adoption process.

An interaction of organisational and environmental factors has contributed to the extent of e-commerce adoption at C1Alpha. These factors are mainly vested in the leadership qualities and belief in the benefits of e-commerce through the application of e-mail and Internet, and the ability to actively use the website with some interactions outside the website to complete sensitive transactions. The said factors have contributed to the extent and measure of success in e-commerce adoption occurring at C1Alpha. In the long-term, technological factors may assume a more significant role as ICT is prone to change and improve (Molla & Licker, 2005b). There are still barriers to further development such as the slow speed of the Internet, the lack of ICT personnel, and the cost of maintaining an Internet presence.

E-commerce activities do not extend to the whole organisation in terms of integrating the processes and only the manager is involved with transacting with customers. There is no ICT expertise or an ICT function but the firm obtains outside assistance for web hosting, maintenance and other ICT support.

5.2 C2Beta

5.2.1 The Nature and Characteristic of Business Environment

C2Beta is a company in the ICT sector that began by selling business office tools such as stationery and equipment (printers and computers). C2Beta is a leading supplier of business machines and stationery office supplies. Since its establishment in 1970, C2Beta has supplied products to customers from small home offices to medium-sized businesses, government, legal, medical and educational establishments.

Business activity at C2Beta can be categorised into four departments: 1) Office equipment and stationery, 2) Business Commercials, that deal with the private sector, 3) Contracts Management that manages business services such as printers, computers and other equipment for the Government of Botswana (GOB), and 4) Internal IT unit; in charge of internal systems such as Pastel and other administrative systems. Further, the IT unit would also be directly responsible for the website and its services as well. The firm has three technical workshops in Botswana which are based in Gaborone, Francistown and Maun. The workshops have fully trained staff with the technical capacity to install, network and train users on machines supplied by C2Beta. Once the machines have been installed, mobile technicians provide support and maintenance of products at the client's premises.

The Company has 70 technicians who are supplied with mobile devices for easy communication and tracking whilst working in the field, at a government's department or a private sector location. A call-logging system is used to monitor technicians and other activities of the workers. This system has tremendously improved the quality of service C2Beta is offering to its clients. The remaining 20% of the business comes from the private sector, locally and internationally (from South Africa). C2Beta became interested in engaging in e-commerce during the past 10 to 15 years, according to the general manager, Steve. The company's interest grew to such an extent that they now are an internet service provider (ISP) as well. However, '*service is not provided to the public, only to ourselves*', Steve explained.

5.2.2 Use of ICT and Web-based Applications

The nature of C2Beta's business, according to Steve, requires a customer to 'feel and touch' the commodity they want to buy. Most of their individual customers actually report physically to their shop and choose the items they want to buy. The local consumers prefer to come to the shop than to use Internet which may not be very reliable due to lack of PC's and knowledge on how to use Internet. Thus Business to Consumer (B2C) is still in its infancy. Steve also expressed the preference for face-to-face contact when making business engagements, as he stated that:

'Face-to-face contact is more preferable when making business agreements than the modern way of communicating using mobile phones.'

The above finding is similar to earlier findings by Duncombe and Heeks (1999) among Botswana's micro and small enterprises.

Steve mentioned that C2Beta is able to capitalise on the power of the Internet as they are able to link with any company in the world. He continued to say that their main focus was on meeting the needs of their business partner:

'The application of Internet and e-commerce is focused on meeting the needs of the government of Botswana, who are our largest partner and also to enable speedy communication between our technicians in the field and the main office.'

C2Beta utilises Business to Business e-commerce to search for products outside Botswana. Once they identify a product that they want to buy, they utilise fax, telephone, and e-mail to get to know their business partners better before proceeding to send bank details for payment and shipment of the goods. However, this is very little as compared to their local market. Much as e-commerce had positive benefits in general terms, the managers explained that its penetration into the operations of C2Beta depended on the ability for e-commerce to offer more business value than the current business practice. As a company in the ICT sector of Botswana, C2Beta's emphasis is on meeting the customer's needs first, it was learnt. Thus,

there was a lot of emphasis on improving relationships with the GOB by providing seamless communication between the ‘staff in the field’ and the main office.

C2Beta’s website is hosted by an ISP in Botswana and according to the general manager, Steve, the cost of running the internet is affordable for the company. Steve narrated that ‘*not many people access the website*’ to initiate a business transaction. At the moment, e-commerce activities through their website are minimal due to the nature of C2Beta’s business. Steve mentioned that the management of the corporate website is done internally, with the expertise of four graphics designers and a systems administrator. There is no thrust on their website that aligns to meeting an online customer’s intentions to buy a product or obtain a particular service from C2Beta other than that of advertising. This is confirmed by Steve’s explanation regarding the impact of their website when he said that;

‘I don’t think a lot of people actually visit our website. A lot of people come either by word-of-mouth, or by advertisement or whatever the case may be, and physically buy from the shop. I think they come and see for themselves what they want and they actually touch and feel. I reckon 90% of the business here is that way, or may be more, we don’t really monitor the website and I don’t think anyone in our organisation does that.’

With regards to social media and cloud computing services, C2Beta has not yet embarked on taking advantage of these services. The company hopes to redefine the role of the IT department to undertake e-commerce improvements and possibly develop e-business in the future.

A website content analysis based on thirteen characteristic features of an e-commerce website (Choudhury & Choudhury, 2010) shows the following:

**Table 5.2.2: C2Beta’s Website Features
(Adapted from Choudhury & Choudhury, 2010)**

Feature	Evidence in the Case
1. Security	
2. Appearance	Satisfactory
3. Adequate information about products and services,	√
4. Speed in downloading the pages	Very Slow
5. Navigation friendly	√
6. Search option/Search engine,	
7. Hyperlinks to other information	
8. Information on member facilities	
9. History and profile of the company	√
10. Ability to obtain information in limited number of pages instead of browsing several pages,	√
11. Option for providing feedback from customers	√
12. Visitor statistics	
13. Availability of interactive online activities	

The security feature on C2Beta’s website has not been activated. There is a lot of display of products and services that the organisation deals in, although much of what C2Beta does may not be found through the website information alone. There are neither search options nor search engine facilities, nor hyperlinks to provide further information, except some tabs that provide menus about the company, its products, services, more information about the company and a ‘contact us’ menu. Furthermore, there are also no ‘visitor statistics’ being captured through the firm’s website and no interactivity through a social networking site.

5.2.3 Managerial Characteristics and Perception of E-commerce

Three managers were interviewed at C2Beta, all in capacities of decision-making in the organisation. Steve, the general manager, has a BA degree and several years of experience in

business management. He is in charge of the daily operations of all the departments as well as linking up with the corporate world, in the Business Commercials unit. He affirmed the significant role that ICT plays in the firm and also how e-commerce will divert attention from the website activities into areas that directly responded to the strategy of the C2Beta. There is a deliberate effort to follow what GOB wants as it contributes over 80% of business in volume, whereas internal operations are being improved with a seamless communication platform with their mobile technicians. The contract manager was in charge of contractual obligations and the IT technicians' resource with the main customer. Most of the IT technicians in this unit are deployed to carry-out computer maintenance and support work with the main customer. Another unit is the IT department that manages the internal systems of the organisation, headed by the systems administrator. There is a plan to improve the organisation's image, its products and services by utilising some of the personnel in the IT unit. These capabilities may be useful in the development and appreciation of e-commerce in the firm although at the moment they seem to be under-utilised.

5.2.4 Factors Affecting E-commerce Adoption

According to Steve, the main factor preventing the advance of B2B e-commerce is that they sometimes face hurdles when they cannot access some business sites on Internet. He went on to explain that C2Beta is unhindered in the development of e-commerce as they are able to order goods through Internet. On whether ICT has brought any change in the organisation, all three managers acknowledged in different interview sessions, the positive impact that ICT, especially the Internet, has brought to C2Beta. Steve explained that the major challenges to the use of Internet and e-commerce was that '*Internet is slow*' and that '*customers preferred to "feel and touch"*' the products before buying from the shop.

The factors that affect e-commerce adoption at C2Beta are both external and internal to the organisation. Within the organisation, the slow speed of the Internet that relates to low bandwidth for the whole country was blamed for the sluggish application of e-commerce. Management is enthusiastic about e-commerce adoption, but this favours the business strategy that the organisation has adopted. The managers stated that they preferred doing business with South African companies because of the close proximity between the two

countries, than to go all out to implement e-commerce activities with unknown organisations in the global market. The following summarises the factors that affect e-commerce adoption at C2Beta based on the TOE framework:

1. Technological:

- Slow speed of the Internet
- Lack of access to clients' website

2. Organisational:

- Manager enthusiasm and perception of e-commerce
- Available e-mail and Internet services
- Active website for marketing products and services, no payment instructions
- Owner/Manager educational background
- ICT skill and expertise available for local market

3. Environmental:

- Customer/buyers preference for traditional methods of business
- Government role as business partner, and policy regulator
- Suppliers provide computer equipment, stationery, and other items
- Economic recession
- Lack of support from local industry firms

The integration of these factors results in the status of e-commerce adoption at C2Beta. This is discussed in the next section.

5.2.5 How Factors Interact to Determine the Extent of E-commerce Adoption

The whole process is directed by the organisation's policy of meeting the needs of their customers, and so, e-mail and Internet applications have been extensively employed to attend to local clients. The main purpose for using the website at C2Beta was for marketing the organisation's products and services. Since the main objective is to meet the needs of a single large business partner, C2Beta's website developments have not been developed to include payment functionalities for the internal and external market. The organisation is also well

positioned to using internal resources to improve e-commerce activities but top management's policy does not allow it to follow this path. There are no future plans to improve this position. Therefore the factors that affect e-commerce adoption largely revolve around the locally defined role of e-commerce in the firm.

Table 5.2.5 summarises the interaction of factors in determining the extent of e-commerce adoption at C2Beta.

Table 5.2.5 – Factor Interaction and Extent of E-commerce Adoption at C2Beta			
Factor	Effect of Factor	Type of Factor	Extent of Interaction
Lack of online ordering & payment facilities on website	Affects ability to attract online purchases from consumers.	Barrier	High
Slow Internet speed	Affects B2B access to clients' websites.	Barrier	Moderate
Manager enthusiasm and perception	Locally defined e-commerce adoption to meet local customer preference.	Driver	Moderate
Available ICT technical and managerial skills	Offering of service to GOB and local clientele	Driver	High
Available e-mail and Internet services	Assist in communication between C2Beta and its local and global clients	Driver	High
Lack of access to client sites	Affects B2B access of some websites.	Barrier	High
Consumers' preference for 'Feel and Touch' features	Affects decisions of local consumers for B2C. Consumers buy physically from shop	Barrier	High
GOB's role	GOB is the main business partner for C2Beta representing over 80% of the business turnover. Affects e-commerce mainly through IT regulation. E-commerce legislation not yet passed into law. Facilitates business transactions using e-mail and Internet communications.	Barrier	Moderate - High
		Driver	Moderate
Customer/buyers preference	Impact on e-commerce adoption decisions and strategic direction of firm. GOB is the main business partner or buyer. The reliance on traditional tendering methods is still very high.	Barrier	Moderate
Suppliers	Impact on e-commerce adoption decisions and strategic direction of firm.	Barrier	Low-Moderate

The results of the table show that C2Beta's drivers for e-commerce are moderately affecting it due to the overall e-commerce strategy defined by the firm's top management. As illustrated in Table 5.2.5, there are many organisational barriers that impact at a high level at C2Beta.

The following are the factors listed in order of their impact from high to low:

1. GOB's preference for traditional method of transacting
2. Customer/buyers preference
3. Top management's decision on e-commerce strategy
4. Lack of online ordering payment facilities on website
5. Slow speed of the Internet
6. Government role as policy regulator.

A combination of all the above factors acting as barriers to e-commerce adoption yield a moderate position in the firm due to the influence of e-mail and Internet in business transactions, as well as the Web for marketing the firm's business activities. Some factors were also classified as drivers, from high impact to low impact, on the extent of e-mail, Internet and Web utilisation in the firm. These are as follows:

1. Available e-mail and Internet services
2. Available ICT technical and managerial skills
3. Manager enthusiasm and perception of e-commerce
4. Government's role as facilitator of business transactions

Thus the above interactions, based on the organisation's business policy have influenced high activity in the application of e-mail and Internet but a minimal application of the Web in the firm.

5.2.6 The Role of the Local Business Environment

There are a number of associations within the local Botswana environment but Steve mentioned that C2Beta belonged to one association of Internet Service Providers (ISP) in Botswana, known as BINX. However, the activities of BINX did not assist the development of e-commerce at C2Beta, according to Steve. Sentsho et al., (2009) noted that although Botswana consisted of a small market that could facilitate easy flow of information among

various business entities, there was still inadequate interaction that could benefit SMEs in their business.

5.2.7 Summary of Research Findings at C2Beta

C2Beta is a medium ICT firm whose business activities involve selling business office equipment and stationery, and providing maintenance and ICT support services mainly to the government of Botswana and other local firms. There are several ICT applications in the firm that assist in carrying out its mandate. The contract management system has been designed to improve business transactions between GOB and C2Beta. The nature of e-commerce adoption at C2Beta can be described as follows:

- i. The use of the Internet for searching for products and business solutions using search engines such as google.com, yahoo.com, and others. The Internet is also used when communicating business information to customers, suppliers, and other stakeholders, using an Internet application such as Skype communication.
- ii. The use of e-mail for communication to employees within the firm, defined as Business-to-Employee. This is also accomplished through the organisation's intranet.
- iii. The use of the website for marketing its products and services. This has been a popular type among SMEs as websites are presented similar to catalogues or brochures of what the firm does (Uzoka et al., 2007). There is neither order placement nor cash payment facilitated through such websites. Instead other channels are pursued by the organisation through Internet and other associated technologies to achieve a strategic objective of the firm. Some features of social networking capabilities are possible but these are dependent on the nature of the business and its application of Internet and web technologies.

C2Beta is therefore applying B2B, B2C, B2E, Intrabusiness, and mobile commerce. Several factors have been highlighted that hinder further development of e-commerce in the firm. The 'slow speed of the Internet' and customer preference are some of the key factors. The main customer, GOB, greatly influences the type of e-commerce strategy being pursued by C2Beta. The lack of interactivity with peer organisations in the local business environment is a drawback for e-commerce development.

5.3 C3Gamma

5.3.1 The Nature and Characteristic of Business Environment

C3Gamma is an SME in the ICT sector which is located in Gaborone. Its main activity is to provide ICT infrastructure, and support services to the government of Botswana and the private sector. It started business operations in year 2000 by local and foreign individuals. There are 68 permanent employees, out of which 46 are technicians with over three years' experience, and five are service managers with over 10 years of experience. The company has other centres in Botswana that are located in Lobatse, Francistown, Palapye, Mahalapye, Serowe and Selibe-Phikwe. Three managers in the technical team have achieved C3Gamma's certification. The technical personnel are certified in various fields and brands of manufacturers such as Linux, Symantec, and Nortel.

Typical services that C3Gamma offers range from repairing computers, printers, photocopiers, switchboard telephone system, network installation and management solutions, e-mail and messaging firewalls, virtual private networks, Microsoft exchange upgrades and migrations, backup execution and storage systems, website design and hosting, multi-platform services such as Windows, Linux, Apple Operating System versions and some others. C3Gamma is an ISO 2000:2005 Certified Company. It is also an authorised certified partner for international Information Technology brands such as Microsoft, Apple, Symantec, 3 COM, Nortel, Lexmark and Gestetner. The bulk of C3Gamma's business is located in Botswana, with the GOB the main business partner, presiding over 80% of the total business volume. GOB follows a traditional method of doing business through tendering; using one or a combination of the telephone (or mobile phone), fax and e-mail, as the normal way of doing business in Botswana.

5.3.2 Use of ICT and Web-based Applications

A number of IT systems are used in the company. These are: 1) the Payroll and Accounting systems, 2) Stock control system, 3) Mileage monitoring system used for monitoring technicians whilst in the field, 4) Management reporting system, and 5) The capture and fault

reporting system. In answering the question as to what is the main objective of their business, one of the managers, Henry, affirmed that;

‘Information is the key to our strategy which is that of providing what the client wants. We see ICT as an enabler.’

The use of the Internet provides a valuable resource for information provision. The main function of Internet in C3Gamma is for performing research, as stated below;

‘Internet is used for research in C3Gamma, whereby solutions to challenging faults are sought on Internet and then shared with other staff in the organisation. This is usually conducted by open search.’

Other uses of the Internet include electronic mail which is mostly used for general communication within and outside the organisation. According to the two managers, email has been accepted as a medium for taking customer orders and for linking up with suppliers. It has been estimated that this kind of business transaction takes approximately 20% of the total volume of the business. The remaining 80% of business activity follows the conventional norm of telephone (or mobile phone), fax and e-mail, as dictated by the Botswana market. Another use of ICT is for electronic banking. Services such as Electronic Funds Transfer (EFT) are used when making or receiving payments from suppliers. EFT is also used for internal payroll operations at C3Gamma.

G3Gamma has an active website, offering company information about the various products and services that it offers. C3Gamma is an Internet Service Provider (ISP), although most of the Internet services are in-house. There are no payment facilities on C3Gamma’s website and the main reasons were explained by Henry as follows:

‘In our position, we look at e-commerce in several aspects or in several dimensions, because we are an e-retailer, and also an e-service provider, where we can integrate a service for an

organisation as an Internet service provider, and also providing support structure for the government of Botswana.’

A call-logging system is in force at C3Gamma to assist the management of job-requests. Technicians who are out in the field also have a way of contacting the main office if they’re facing problems with their work or their vehicle has broken down.

Asked to comment about the organisation’s business objectives in using social networking facilities, Henry reported that the use of social media would not be a prime target for C3Gamma as they intend to deal with larger organisations such as the government of Botswana. With regard to the challenges they faced in meeting their business objectives, Henry commented that:

‘In terms of software, the digital divide challenge has been resolved. It is now easy to obtain software from the manufacturers through Internet from anywhere on the globe. One does not need to wait for a long time.’

He further explained that:

‘It is possible to get the best software applications from anywhere in the world now, through the power of the Internet and that there is no need to wait for long periods of time for products to reach their location in Botswana.’

Information gathered from the interview sessions and the researcher’s web analysis gave the impression that the main purpose for using the website at C3Gamma was for marketing the organisation’s products and services. Both managers agreed to this position. In one of the follow-up meetings Henry commented that C3Gamma does not desire to pursue e-commerce like a merchant organisation, as he said that,

‘it was not our intention as company policy to go in that direction of business for e-commerce purposes.’

It can be concluded therefore that the use of ICT at C3Gamma is meant to meet the organisation's strategy; that of providing ICT maintenance and support to its local consumers. The use of C3Gamma website has not been incorporated to be a point of contact for strategic business undertakings since most business is locally based. Thus, the website remains as a marketing tool. Yet, C3Gamma uses other organisation's websites when it searches for valuable information that is used to meet the needs of the local business.

A website content analysis based on thirteen characteristic features of an e-commerce website (Choudhury & Choudhury, 2010) shows the following:

Table 5.3.2: C3Gamma's Website Features (Adapted from Choudhury & Choudhury, 2010)	
Feature	Evidence in the Case
1. Security	
2. Appearance	Satisfactory
3. Adequate information about products and services,	√
4. Speed in downloading the pages	Very Slow
5. Navigation friendly	√
6. Search option/Search engine	
7. Hyperlinks to other information	√
8. Information on member facilities	
9. History and profile of the company	√
10. Ability to obtain information in limited number of pages instead of browsing several pages	√
11. Option for providing feedback from customers	√
12. Visitor statistics	
13. Availability of interactive online activities	√

There is no security feature displayed on C3Gamma's website. Information is provided about its products and services, the history of the organisation, management structure, and

information about business partners in the local market. However, search options and search engine facilities, and hyperlinks to provide further information, are all not visible. Some tabs exist that provide menus about the company, its products, services, more information about the company and a 'contact us' menu. There are no visitor statistics being captured through the firm's website, and no interactivity through a social networking site.

C3Gamma's website developments have not included payment functionalities. The organisation is also well able to use internal resources to improve e-commerce activities but top management's decision does not allow it to follow this path. Future plans to integrate payment services through the web cannot be perceived at the moment.

5.3.3 Managerial Characteristics and Perception of E-commerce

Henry, who is the Chief Operations officer at C3Gamma, has a Bachelor's degree in a relevant discipline that he applies in the business. He was able to defend the decision of management in choosing to focus and expand the local business. Thus there is adequate understanding of what type of e-commerce suits C3Gamma. The Finance Manager, Mpho also explained the position of management with regard to e-commerce developments in the firm. Further, other senior managers, who are qualified in various business disciplines, have long understood the direction the firm intends to take in e-commerce adoption. Management's decision is to grow the full ICT domain rather than to focus on one aspect of ICT development such as e-commerce. These findings align with the notion that managers know what their organisations want, and they make decision in favour of such business objectives (Effah, 2011; Thong, 1999).

5.3.4 Factors Affecting E-commerce Adoption

As an SME in the ICT sector, C3Gamma has the Government of Botswana as its main business partner and as such over 80% of business activities are generated from this partnership. A drawback to full e-commerce utilisation was the *regulatory reform* that is '*yet to be completed and passed into law.*' The interviewees (the Chief Operations Manager and Finance Manager), on separate occasions explained that the business environment in

Botswana still maintained traditional means of doing business, that is, using landline telephone or a mobile phone and fax, and email. An additional means for communication was the use of mobile phones for technicians out in the field and establishing business relationships with suppliers and customers. He also explained though, that some services had been computerised such as payment of clients and salaries. Another barrier to quicker searching on the web was the *slow Internet* that both managers cited as a big challenge to doing e-commerce in their organisation.

A positive organisational characteristic is the *top management's attitude* towards e-commerce development. However, this is modelled to meet the needs of C3Gamma's clients. The role of the Government of Botswana is significant as it is a major business partner, presiding over a lot of business activities that the firm offers. C3Gamma activities are targeted to meet this need. Since the *reliance on GOB* is very high, any undertaking of e-commerce currently depends on this relationship. This kind of role is somewhat beyond what Governments are usually known for; in policy formulation and guidance in business matters (Scupola, 2009). In the recent months, C3Gamma has diversified its services by providing retailing solutions such as printing, photocopying, binding, and the sale of computer consumables. In concluding one of the interview discussions, Henry remarked that security would be a key challenge:

‘One of the major challenges that will compound e-commerce initiatives in organisations is the issue of security.’

In summary, the status of e-commerce at C3Gamma is similar to C2Beta; which is inclined to using e-mail and Internet extensively, and also accessing other organisation's website with an aim of obtaining information as an input to various applications in the organisation. The factors that affect e-commerce adoption at C3Gamma are also linked to their overall organisation's strategy; that of meeting the local clients' needs of providing ICT support and maintenance. The following are the factors that affect e-commerce adoption at C3Gamma based on the TOE framework:

1. Technological:

- Slow speed of the Internet
- Lack of access to clients' website

2. Organisational:

- Manager enthusiasm and perception of e-commerce
- Available e-mail and Internet services
- Active website for marketing products and services
- Owner/Manager educational background
- ICT skill and expertise available for local market

3. Environmental:

- Customer/buyers preference for traditional methods of business through tenders
- Government role as major customer
- Lack of e-commerce policy
- Suppliers provide computer equipment, stationery, and other items
- Lack of interaction with peer organisations
- Economic recession

5.3.5 How Factors Interact to Determine the Extent of E-commerce Adoption

The factors that have been identified in the previous sections are analysed to assess their impact on the firm's business strategy. From Table 5.3.5 which has been derived from this study, a high driver for e-commerce adoption will influence e-commerce adoption in a positive direction in the firm, whereas a high barrier will negatively impact on e-commerce adoption.

Table 5.3.5 – Factor Interaction and Extent of E-commerce Adoption at C3Gamma

Factor	Effect of Factor	Type of Factor	Extent of Interaction
Lack of online ordering and payment facilities on website	Affects ability to make online purchases.	Barrier	High
Slow speed of Internet	Affects ability to search and perform various tasks on Internet.	Barrier	High
Minimal use of website	Affects ability to make online purchases.	Barrier	High
Manager enthusiasm and perception	Uses Internet search tools to search global websites for information.	Driver	Moderate
ICT technical and managerial skills	Available to service local business	Driver	High
Available e-mail and Internet services	Assist in communication between the firm and its local and global clients	Driver	High
Government Role	Indirectly affected, mainly through IT regulation. E-commerce legislation not fully functional	Barrier Driver	Moderate Moderate
Customer/buyers	Impact on e-commerce adoption decisions and strategic direction of firm. GOB is the main business partner representing over 80% of the business turnover. The reliance on traditional tendering methods is very high.	Barrier	High
Suppliers	Impact on e-commerce adoption decisions and strategic direction of firm.	Barrier	Moderate
Economic recession	Impact on the inputs of ICT consumables from US and European market.	Barrier	Moderate

Table 5.3.5 shows several barriers that interact with some drivers to influence the nature of e-commerce at C3Gamma. The main customer dictates the way business is done within the organisation. E-mail and Internet are very useful to assist in providing business solutions to the local market. There is adequate ICT skill and expertise to meet the needs of the local market. There are several high barriers within and outside the organisation that inhibit further development of e-commerce in the firm. The corporate website is static and does not have much interaction with online visitors. Management’s position is not to deal with single online consumers through Internet. Therefore, much of the contribution of e-commerce is mainly through e-mail and Internet, and very minimal is influenced through the corporate website.

The following are the high barriers to e-commerce adoption at C3Gamma:

1. GOB’s preference for traditional methods of transacting with C3Gamma
2. Customer/buyers preference which is locally defined
3. Top management’s decision on e-commerce strategy

4. Lack of online ordering payment facilities on website
5. Slow speed of the Internet
6. Government role as policy regulator
7. Suppliers preference
8. The global recession

C3Gamma also contains some key drivers that could have advanced its e-commerce opportunities tremendously but these have been suppressed to suit the organisation's policy.

The drivers are:

1. Available e-mail and Internet services
2. ICT technical and managerial skill, and
3. Manager enthusiasm and perception about e-commerce

5.3.6 The Role of the Local Business Environment

With respect to the local business environment, C3Gamma belongs to an association of local Internet Service Providers. It receives no assistance from any organisation on how to improve e-commerce in the firm. The local Botswana environment appears to impact very little in terms of fostering development in e-commerce perhaps due to the pre-occupation of C3Gamma with GOB.

5.3.7 Summary of Research Findings at C3Gamma

C3Gamma is a medium sized ICT firm that provides various ICT support services to the government of Botswana and other local firms. There are several ICT applications and adequate human and technical ICT skill to perform various tasks. The type of e-commerce pursued by C3Gamma is similar to C2Beta, and can be summarised as follows:

- i. The use of e-mail for communication to employees within the firm, defined as Business-to-Employee (B2E). This is also accomplished through the organisation's intranet. E-mail is usually used alongside Internet for searching for products using search engines such as google.com, yahoo.com, and others. Internet is also used when communicating business information to customers, suppliers, and other stakeholders, using an Internet application such as Skype communication. The

circumstances may involve users with mobile applications. Thus, mobile commerce or B2B e-commerce may be defined in these situations.

- ii. The use of the website for marketing its products and services. There is no order placement or cash payment facilitated through the firm's website. The types of e-commerce described in this situation may be B2B or B2C.

C3Gamma's e-commerce adoption strategy is mainly focused on local business partners in the public and private sectors. There are several systems that are in operation, but all are meant to improve business relationships between C3Gamma and its business partners in the local business environment. There is adequate ICT skill to undertake further e-commerce development activities. The type of e-commerce being employed at C3Gamma can be described as B2B, B2C, B2E, Intrabusiness, and mobile commerce. Key factors affecting e-commerce adoption are mainly from the external environment, particularly customer or business partner preference. Internal barriers to e-commerce adoption are largely defined by management's e-commerce strategy for the firm, which at the moment leans more on the use of e-mail and Internet applications and less on the application of the Web. The use of Web 2.0 applications is absent and social networking features have not been applied for business purposes. The 'slow speed of the Internet' and their customer's preference dictate the way e-commerce is undertaken in the firm. The lack of interactivity with peer organisations in the local business environment is a drawback for further e-commerce development.

5.4 C4Teq

5.4.1 The Nature and Characteristic of Business Environment

C4Teq is a small ICT firm, with 23 staff. C4Teq comes into this sample because they represent a small firm that deals with the provision of ICT products and services in Botswana, and at the same time, has undergone various ups and downs in their quest to develop e-commerce. The general manager (Dennis) and IT manager (Reepo) were the key informants, although most of the interactions were conducted with Dennis as he has been with the organisation for all its life-time, and he is also an owner manager. Reepo had only been with

the organisation for less than a year and could not respond to issues that had happened before he joined the firm.

The company began in late 2001, having been motivated by the GOB's empowerment policy to reserve certain aspects of procurement to citizen-owned companies. C4Teq's focus at the beginning was to sell predominantly IT hardware and software. Some aspects of the business were as follows in the early years;

‘Barriers of entry were not so great then. This brought about a lot of benefits and challenges. There was a lot of competition at the beginning and this meant that the prices were being pegged lower than the overheads to an extent that the profits were much lower.’

Business activities are mainly with GOB and parastatal organisations and this is mainly tender based. The client would normally stipulate what work needs to be done and also stipulate the requirements, and the type of resources that were required. The strict adherence to GOB requirements did little to grow the business interests of C4Teq as there was little value added in most jobs that were undertaken. C4Teq incurred high costs in meeting professional standards for certain specialised jobs but these were not fully compensated by the client. Thus C4Teq had to create a plan to move away from overdependence on the GOB by offering services to the private sector as well. However, the structure of the market still leans towards the GOB as the main customer presiding over 80% of business. The remaining market (20%) is covered by parastatal companies, private organisations and individual clients.

5.4.2 Use of ICT and Web-based Applications

At C4Teq, ICT use is directly linked to the firm's primary core business. The firm's main activities and services to its clients are focused on the following; 1) providing inventory services to thirty-seven local clients; 2) maintaining communication and network services, and 3) creating and maintaining knowledge bases. The manager explained that ICT is an enabler to C4Teq's operations. The use of e-mail is very common, and so is Internet for communication, and for searching for business solutions through search engines. Some

Internet application such as Skype has been employed to conduct meetings with global suppliers and customers.

C4Teq did not have an active website during the period of field work although they had had in earlier years. Some challenges are explained in section 5.4.4 that led to the discontinuation of the Web application. During the follow-up period with the managing director, it was learnt that their website had been re-activated. However, it has not been possible to access the website despite such confessions by the firm.

5.4.3 Managerial Characteristics and Perception of E-commerce

As already mentioned, Dennis, who is the managing director and owner of C4Teq has a bachelor's degree. Currently, he is pursuing postgraduate studies that he hopes to utilise in the running of the firm. The IT manager (Reepo) showed satisfactory understanding of what e-commerce entails for C4Teq. Dennis mentioned that most of the personnel are qualified network engineers, with specialisation in telecommunications and wireless communication services. The researcher was able to establish that senior management at C4Teq had a satisfactory perception of what e-commerce entails, although they had encountered several challenges.

The next section deals with some of these factors.

5.4.4 Factors Affecting E-Commerce Adoption

In terms of e-commerce, C4Teq has faced some challenges. Dennis explained that the first challenge was the procurement process in the country which was directly tied to the prevailing local market conditions. According to Dennis, the local market is 80% dominated by GOB, and 20% on parastatal organisations and private sector. Any business undertaking that C4Teq had to undertake was directly dictated by GOB, and sometimes did not improve or encourage e-commerce adoption. He explained thus:

‘The procurement process in the country is mainly tendering, which does not promote e-commerce. This requires a lot of hard copy and printing of tender documents.’

Earlier plans around 2007 by C4Teq to embark on e-commerce had targeted a niche among mobile phone users in Botswana. But there were so many logistical challenges as reported below:

‘We moved the hosting to South Africa and having done that, we then decided to re-build the website to take advantage of the opportunities then that would include the e-commerce component. There is software that we wanted to sell online to local mobile phone users. So we took it down so that they can design the ordering structure. When we just finished the design, everything was fine, and we were ready to start, we realised that we can’t do it, to sell the software in Botswana because of the laws at that time, and the banks, they don’t give you that kind of information. The banks were unable to provide an interface for payments. So we cut all that..... We were actually victims of that particular program because where we took the website for hosting; they wanted to debit my personal account so that they could deduct the payments on a monthly basis. The hosting company was not comfortable with a Botswana credit card and the requirement that every time there was a transaction, I needed to go there and give them my credentials. We kept on going around that... I tried to open an account in South Africa but eventually the whole idea stalled.’

At the organisational level, Dennis explained that the ‘slow speed of the Internet’ was not encouraging e-commerce activities in the firm. Coupled with the conventional way of doing business with fax, telephone and sometimes e-mail, B2B e-commerce still lags behind. The use of mobile phones to communicate with suppliers or customers is considered a high improvement by Botswana business standards.

Dennis also narrated the strenuous business relationship between C4Teq and the GOB that:

‘Keeping up with the demands of a powerful business partner like GOB has always been a challenge for C4Teq as this has often been costly, and business contracts would not be granted for a longer period.’

C4Teq has continued to use Internet facilities in their daily business operations, mainly for searching for business and technical solutions. The significance of the earlier website could not be sustained as Dennis explained as follows:

‘we decided to concentrate on offering services to the local clients who mostly did not need website applications but required services such as installation and maintenance of ICT applications and networking. Another reason was the escalating costs of maintaining Internet facilities which were prohibitive for the firm.’

The payment method which had been mentioned to be a challenge at the beginning of the study had now been resolved when follow-up visits were made to the organisation. The managers had also mentioned that the economic recession remained a key challenge that C4Teq was facing during the first interview sessions but the situation had improved greatly during subsequent visits. The following are the factors that affect e-commerce adoption at C4Teq based on the TOE framework:

1. Technological:

- Lack of website
- Slow speed of the Internet

2. Organisational:

- Manager enthusiasm and perception of e-commerce
- Owner/Manager educational background
- Available e-mail and Internet services
- ICT skill and expertise available for local market

3. Environmental:

- Customer/buyers preference for traditional methods of business through tenders
- Government role as a policy regulator
- Lack of e-commerce policy
- Lack of credit card for most consumers
- Supplier preferences for off-line means of transaction

- Lack of interaction with local peer organisations
- Economic recession

5.4.5 How Factors Interact to Determine the Extent of E-commerce Adoption

Table 5.4.5, developed from this study, shows the factors and how they interact to determine the extent of C4Teq's e-commerce adoption.

Table 5.4.5 – Factor Interaction Extent of E-commerce Adoption at C4Teq			
Factor	Effect of Factor	Type of Factor	Level of interaction
Lack of active web site	Prevents web-based marketing decisions.	Barrier	High
Slow speed of Internet	Affects access speed for browsing and searching activities.	Barrier	Moderate
Cost of Setting up and Maintenance	Affects firm's ability to improve e-commerce activities.	Barrier	Moderate-High
Lack of credit card payment facilities/ Inadequate e-commerce laws	Affected ability of local consumers to pay online Prevents local consumers & firms from participating in e-commerce.	Barrier Barrier	High High
Owner/Manager Characteristics	Enthusiastic about ICT and E-Commerce activities by pursuing a locally-based B2C model. However, the project could not take-off due to logistical challenges.	Driver	Moderate
ICT technical and managerial skills	Available to service local business clients	Driver	Moderate
Available e-mail and Internet services	Enable communication with business partners	Driver	Moderate
Government Role	Indirectly affected, mainly through IT regulation. E-commerce legislation not fully functional. Facilitates business transactions using e-mail and Internet communication	Barrier	High
		Driver	Moderate
Customer/buyers preferences	Major customer dictate business norms	Barrier	High
Suppliers	Provide little motivation as the SME deals with regional firms that are not e-commerce ready.	Barrier	Moderate-High
Economic recession	Impacts their ability to procure ICT products from overseas especially USA and other countries.	Barrier	High

There are several factors that act as high barriers in the organisation. These are:

1. Lack of active website to advance e-commerce intentions

2. GOB's preference for traditional method of transacting
3. Customer/buyers preference which is locally defined
4. Slow speed of the Internet
5. Government role as policy regulator
6. Supplier preferences
7. The global recession

5.4.6 The Role of the Local Business Environment

The managers explained that C4Teq does not belong to any organisation that could assist its development of e-commerce. However, the position of the GOB in the firm may have taken much of C4Teq's attention such that there was little room for the firm to associate with other organisations regarding e-commerce matters.

5.4.7 Summary of Research Findings at C4Teq

C4Teq is a small ICT firm that began operations in 2001. It mainly utilises e-mail and Internet for its current e-commerce initiative. The firm's plans to actively employ a corporate website in its e-commerce strategy were curtailed due to several logistical challenges. E-commerce activities currently centre on the use of e-mail for communication with customers, suppliers, and internal collaboration amongst staff. Internet is used for searching for business solutions, and providing e-mail interface through applications such as Skype. Therefore, the type of e-commerce being pursued in the firm may be described in form of B2C, B2B, B2E, mobile and intrabusiness e-commerce.

ICT applications and human resources are meant for supporting the networking and communication needs of the local customers, mainly the GOB and other small companies. Organisational factors such as managerial support and innovativeness may be used to provide a future strategy for e-commerce adoption or non-adoption in the firm. Like other SMEs in the study, they complain about poor Internet services for business. They are connected to global suppliers using Skype which is a new ICT innovation for C4Teq.

5.5 C5Home

5.5.1 The Nature and Characteristic of Business Environment

C5Home is a lodge located in a rural area, 89 km from Gaborone on the Tswalu Kalahari reserve. It started its business operations in May 2001. C5Home offers traditional style accommodation in the form of small houses, a conference facility and a restaurant. There are 26 persons employed by C5Home. Only 4 of these undertake administrative functions using the computer; two in the front office, one business manager, and one book-keeper. The rest of the staff undertakes shift work attending to clients in the restaurant and conference centre and other areas. Two key managers, Tumelo and Nicky, were the key informants during the whole process of data collection. It was learnt that as a lodge in a rural setting of Botswana, it was much cheaper for C5Home to obtain food supplies and other equipment from the local market. The other easier alternative, based on cost, was the South African market.

5.5.2 Use of ICT and Web-based Applications

There are three computers currently running Pastel accounting software. A laptop (used by Tumelo) and mobile phone are also supplemental devices that are employed in the business. C5Home employs Internet banking facilities for paying creditors. There is no ICT unit in the firm but instead the C5Home obtains assistance for ICT repair and maintenance from an external ICT firm.

A wireless Internet connection is also available. Nicky, the business manager, emphasised the significance of ICT, particularly the computer, when he stated that:

‘The computer is our focal point in the business.’

The corporate website, which was developed by a member of the family, provides access to clients to make bookings and payments for services. According to Nicky, most international clients have access to C5Home’s website. A variety of other third-party agents also provide business to C5Home, as Nicky further explained:

‘We also have some appointment agents who normally communicate and organise bookings for us. The one which is very active right now is called e-Homebookings (a pseudonym). It

is based in South Africa and Mozambique. It is very active and I suspect they have some business contracts with Botswana because the rate at which the guests come, they really make us busy. We are the ones who sometimes disappoint them when they find us fully-booked.’

Nicky also explained that their agents first came across C5Home’s website and then communicated with them to request for business partnership. Concerning rewards from the business relationship with the agents, Nicky explained that the agents take commission from the client when they make the bookings and C5Home is also able to charge a full market rate. Further, he explained the usefulness of the website to campers, that;

‘There are some who come suddenly such as campers, but they come after making bookings or reservations through our website.’

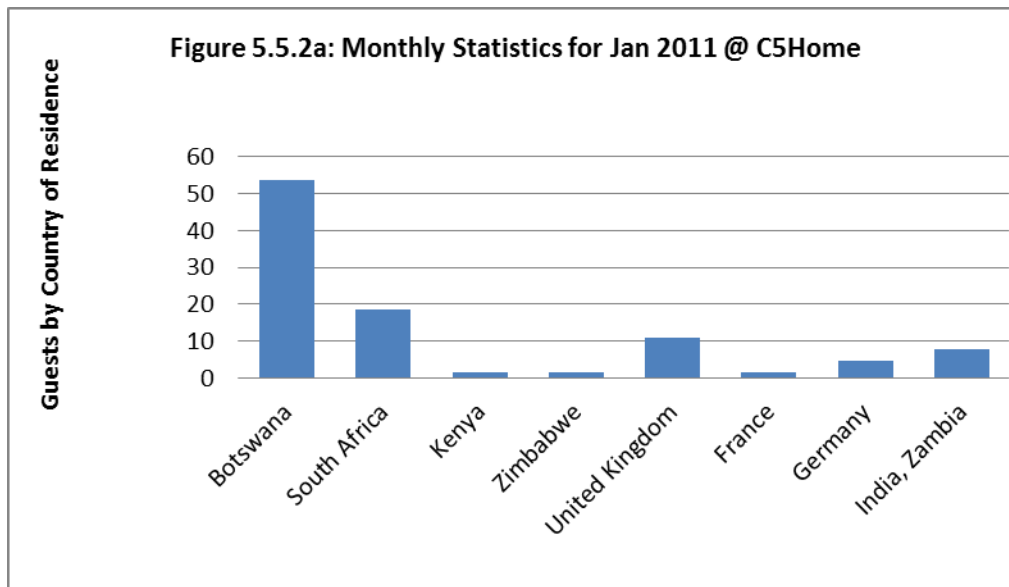
There are three other appointed agents that place bookings on C5Home’s website such as TripHome, TripPoint and TripStar but ‘*these have not been very active*’, said Nicky.

In order to assess the contribution of the online business, it was necessary to ascertain whether all international guests were obtained through website applications. Nicky confirmed this assumption when he stated that:

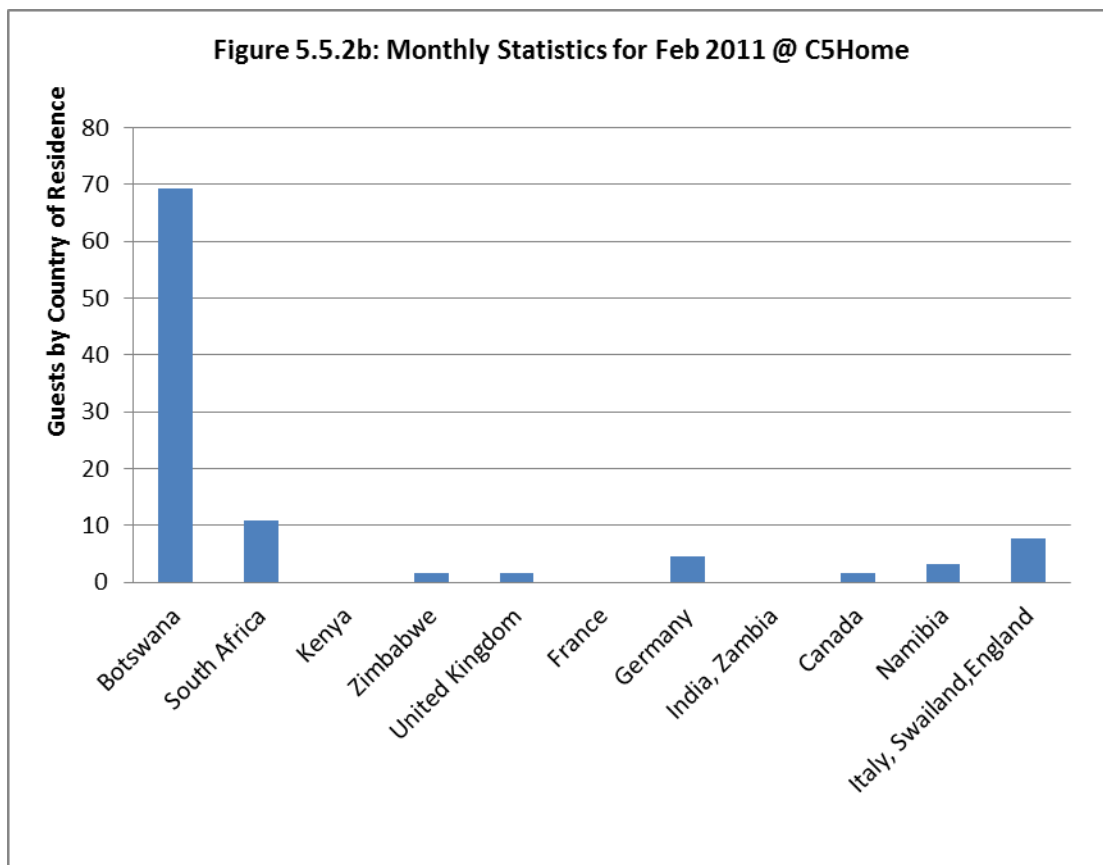
‘All our international guests access us through our website. However, even campers who usually just appear for one day or so, they make bookings by accessing our website before arriving at C5Home.’

A comparison was made between local Botswana guests and international tourists who were in residence in selected months in year 2011. The statistics showed that the highest number of visitors to C5Home came from local visitors from the government of Botswana, some public organisations and a few individuals. Nicky confirmed that local business transactions were generated mostly by landline telephone or mobile phone, and sometimes in combination with e-mail.

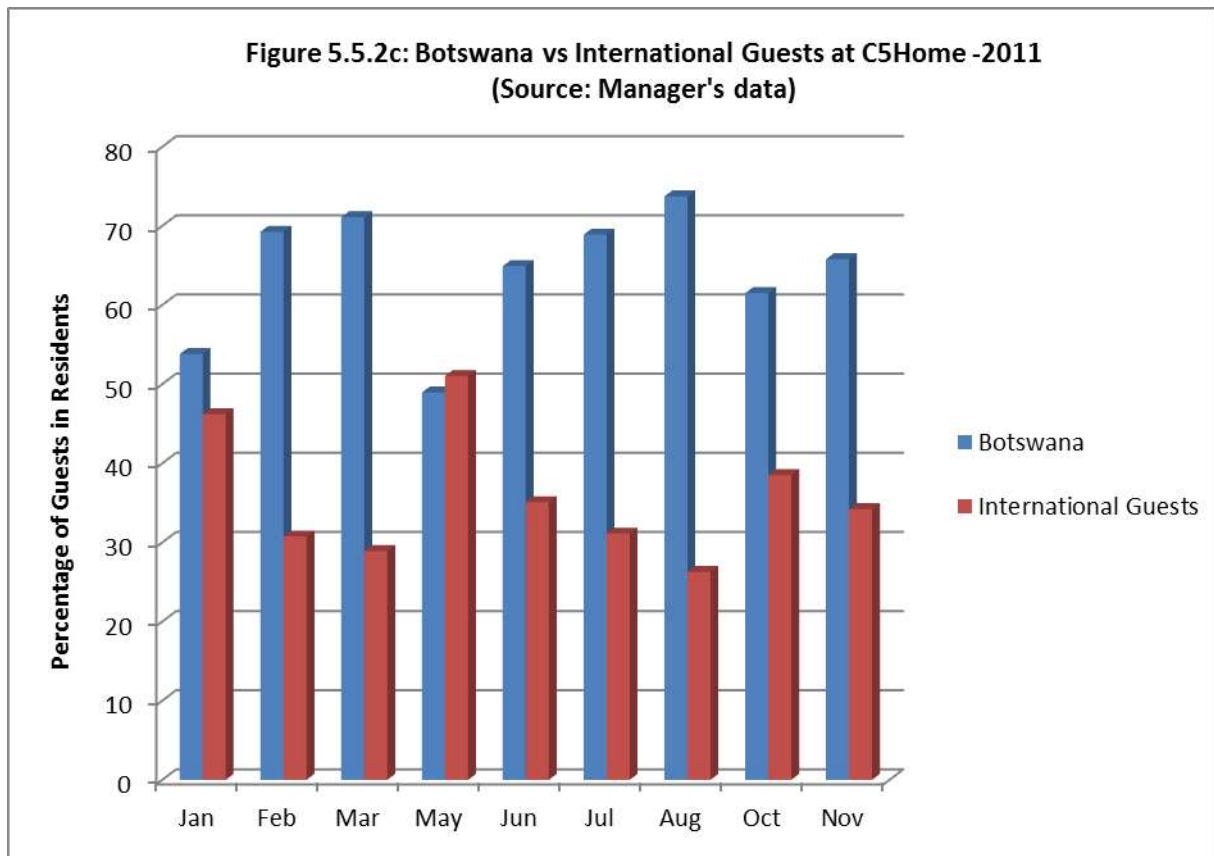
Figures 5.5.2a and 5.5.2b show monthly statistics for January and February, 2011, respectively.



The highest number of guests for the month of January 2011 came from local consumers, mainly from government departments in Botswana. These usually transact through purchase order documents through traditional methods of transacting. For international guests, the highest number came from countries such as South Africa followed by UK; and smaller portions from other countries. All international guests are linked through C5Home's website using a third-party's website hosted in Mozambique.



The same trend appears in February 2011, where local guests patronise the services of C5Homme more than international guests. Figure 5.5.2c shows all the results for Botswana versus all international guests for selected months in year 2011.



From the above Figure 5.5.2c, it can be seen that from January to November in 2011, the same trend occurs where there are more guests from the local business environment than the international community. With regard to new Web 2.0 applications such as social network media (SNM), C5Home is also on Facebook where the firm hopes to market itself to prospective tourists from within and outside Botswana. One of the managers, Nicky, explained that social network media has been particularly useful to provide local information on the events taking place in Botswana. There had not been any impact from the international scene yet.

A website content analysis based on thirteen characteristic features of an e-commerce website (Choudhury & Choudhury, 2010) shows the following:

Table 5.5.2: C5Home website features (Adapted from Choudhury & Choudhury, 2010)	
Feature	Evidence in the Case
1. Security	√
2. Appearance	Satisfactory
3. Adequate information about products and services,	√
4. Speed in downloading the pages	Very Slow
5. Navigation friendly	√
6. Search option/Search engine,	
7. Hyperlinks to other information	√
8. Information on member facilities	
9. History and profile of the company	√
10. Ability to obtain information in limited number of pages instead of browsing several pages	√
11. Option for providing feedback from customers	√
12. Visitor statistics	
13. Availability of interactive online activities	

Based on Table 5.5.2, C5Home’s website does not provide security features that give a sense of assurance to its online visitors. There is adequate company information, and the services that the firm deals in, with full payment options using international credit cards. There is an option for hyperlinks such as the Botswana currency converter, google maps for locating the firm, and a reservation toll-free line. Thus, there are no visitor statistics that are being captured through the firm’s website. C5Home has registered for SNM on Facebook, although the feature is not visible through the website.

5.5.3 Managerial Characteristics and Perception of E-commerce

The manager and owner of C5Home, Tumelo, obtained a Bachelor's degree in Accounting from the US which is a good foundation for running the business. She also studied entrepreneurship, marketing skills, and computer appreciation skills to complement her qualification. The researcher's interaction with her confirms that she understands the critical role e-commerce has played at C5Home. This is a positive driver to further improvements in the development of e-commerce in the organisation. Nicky, the business manager also commented about the awards that C5Home has won due to the innovative and entrepreneurial ways of managing the business. He narrated that as managers in the firm, they make it a point that at least one of them attends a seminar or workshop that comes up in the local environment, and this has paid-off a lot. There is clear evidence that the managers' education, innovative and entrepreneurial abilities (Jeyaraj et al., 2006; Cloete et al., 2002), have all assisted in improving the status of e-commerce at C5Home.

5.5.4 Factors Affecting E-commerce Adoption

According to Nicky, the dependence on the local business from government departments sometimes puts a strain on the cash flow because of delays in making payments for services rendered. He narrated that most challenges they experience relate to the business in general and not e-commerce as such. He went on to say that;

‘I think the challenges are few, but these relate to getting more market, in general, not really on the usage of e-commerce as such. We are dealing with the local market which is purchase-order based. This requires that we give them a service and they pay after a period of 30 days or 45 days, and sometimes it takes 60 days. If we can have our full bookings from e-commerce, then we would be able to eliminate the cash problems.’

Another factor in the use of e-commerce is the ‘*constant breakdown*’, explained Nicky. He further mentioned that ‘*trying to resolve such faults may take several days*’, thus affecting business interactions between all the stakeholders and C5Home. The slow speed of Internet and basic ICT facility, are some of the issues that managers have to contend with. The *cost of advertising* was also mentioned by both managers to be a challenge for the organisation.

C5Home's remote location in a unique rural environment is a positive factor that favours an inflow of tourists from across the world, but the same can be a hindrance to telecommunication services. Thus, in summary, the factors affecting e-commerce adoption at C5Home based on TOE framework are the following:

1. Technological:

- Slow speed of the Internet
- Acute power shortages

2. Organisational:

- Manager enthusiasm and perception of e-commerce;
- Active website with payment instructions
- Available e-mail and Internet services
- Owner/Manager educational background
- Time to devote to website development
- Cost of setting-up and maintenance (lack of funding)
- Lack of ICT Skill and Expertise

3. Environmental:

- Government Role
- Customer/buyers
- Suppliers
- Economic recession

The analysis shows that there are more significant organisational factors that drive e-commerce adoption than factors that hinder it at C5Home. Even though a considerable ground in utilising e-commerce has taken place in the firm, technological issues are still a challenge to C5Home. This contrasts with the findings by Molla and Licker (2005a, 2005b) that once an organisation has initialised e-commerce, subsequent challenges to e-commerce adoption are less technical in nature.

5.5.5 How Factors Interact to Determine the Extent of E-commerce Adoption

Table 5.5.5 has been developed to summarise the interaction of factors to determine the extent of e-commerce adoption at C5Home. Each factor is further characterised either as a barrier or a driver for e-commerce adoption in the firm.

Table 5.5.5- Factor Interaction and Extent of E-commerce Adoption at C5Home			
Factor	Effect of factor	Type of Factor	Extent of interaction
Active website with order and payment options	Enables the firm to transact online	Driver	High
Use of third-party websites	Markets firm's products and services to international online tourists	Driver	High
Available e-mail and Internet services	Enable communication with business partners	Driver	High
Owner/Manager Characteristics	Enthusiasm about ICT and e-commerce activities.	Driver	High
ICT Skill and Expertise	Not available but desirable.	Barrier	High
Slow Internet	Affects access and use of third-party website and social media.	Barrier	Moderate
Poor telecommunication lines	Affects access and use by clients and third-party agents.	Barrier	Moderate
Government Role	Indirectly affected, mainly through IT regulation. E-commerce legislation not fully functional.	Barrier	Low
	Provides local guests	Driver	High
Customer/Tourist	Impact on e-commerce adoption decisions and strategic direction of firm.	Driver	High
Suppliers	Impact on e-commerce adoption.	Barrier	Low
Acute power shortages	Prevents online transaction with ICT	Barrier	Moderate

The table shows that C5Home has managed to establish e-commerce by combining high drivers from within and outside the organisation. As illustrated in Table 5.5.5, high and moderate drivers can be identified as critical factors for development of e-commerce at C5Home are the following:

1. Manager enthusiasm and perception of e-commerce
2. Available e-mail and Internet services
3. Active website with order and payment options
4. Owner/Manager educational background, and innovative leadership

5. Customer/buyer propensity to pay for services through Internet

C5Home has also benefited from an influx of tourists from the US, Europe, and other countries, who want to explore the rural and serene environment of Botswana. They make reservations directly and pay for services using standard international credit cards. Furthermore, the success of C5Home is also noted for turning moderate or high barriers and challenges in the firm into business solutions. The rural location of the firm could have been a drawback due to poor and slow Internet connections, but the firm has managed to alter these challenges. The lack of ICT skill and expertise has also been resolved by obtaining web hosting, ICT maintenance and support services from an outside firm.

5.5.6 The Role of the Local Business Environment

C5Home is an active member of BOCCIM, Local Enterprise Authority and an association for Tourist companies in Botswana known as HATAB. Senior management have taken turns to attend trade fairs and exhibitions. C5Home has participated in some of these exhibitions where they've been awarded best recognition in service and other product categories.

5.5.7 Summary of Research Findings at C5Home

C5Home is a small tourism firm that has been in operation since 2001. The firm uses ICT applications for managing financial data and e-mail and Internet for communication purposes. A corporate website is used for receiving room reservations through appointed (third-party) agents. Clients are also able to pay through international credit cards for required products and services. Thus, the types of e-commerce at C5Home are B2C, B2B, and mobile commerce. This is a usual trend in the tourism industry (Salwani, Marthandan, Norzaidi & Chong, 2009; Ray & Ray, 2006; Buhalis, 2003, p. 280).

Organisational factors include; visionary leadership, manager's innovative and entrepreneurial abilities, active website with payment options hosted on third-party websites, managers educational qualifications. These factors have contributed to the success of e-commerce adoption at C5Home. Environmental factors such as appointed agents, customers, industry characteristics and Government role, exert a moderate impact on the firm, and are

more significant than technological factors such as the status of telecommunication lines and unreliable power supply. In the long-term, technological factors affecting the tourism industry may assume a more significant role as e-commerce activities do not extend to the whole organisation and neither is there ICT expertise nor an ICT function.

5.6 C6Lodge

5.6.1 The Nature and Characteristic of Business Environment

C6Lodge is a three star hotel in the outskirts of Gaborone. It offers conference and restaurant facilities, and hotel accommodation. Business operations for C6Lodge started in 2001 as a lodge. It then attained 'Hotel' status in 2010. There are currently 38 permanent employees. For most part of the research period, the land line telephone, the mobile telephone or e-mail have been the prevalent means of communication between C6Lodge and its clients. Lately, C6Lodge has re-activated its website using assistance from a local ICT firm. Most of the inputs to the business are sourced from within the local Botswana market and they do not need the use of Internet to connect with most suppliers. A key challenge that management grapples with all the time is the issue of land. Pitso, the managing director explained that *'if we had land, I wouldn't be bothering anybody.'* The land challenge is such an inconvenience to the running of the business due to the current location of C6Lodge which is in a residential area. C6Lodge is restricted to offering services that would not infringe on the rights of other residents in its neighbourhood.

The business has tried to incorporate some university students on internship but they can only take one student at a time due to 'space' constraint. Pitso's office can only accommodate one extra person. To overcome this issue, C6Lodge has built other structures within Gaborone that are expected to ease up this challenge. Yet, this is not the original plan for the business to spread throughout the city in small structures as Pitso's intention was to be in the outskirts of Gaborone on a much wider location with adequate space. Despite the land challenge, Pitso was very appreciative of the staff attitude and the pressures they undergo on a day-to-day basis, as he commented that:

‘I am very fortunate because the staff that I have, if we become busy, they also become more committed.’

5.6.2 Use of ICT and Web-based Applications

Pitso explained that ICT is used minimally at C6Lodge. There are currently four computers that are used for processing administrative and business transactions. An accounting package, AccPac, is employed for processing accounting and finance transactions. The payroll is processed manually and some employees are paid through Internet banking. ICT support and maintenance of systems is sourced from an outside ICT firm but these had their demands which sometimes are costly for the firm to meet. With regard to ICT applications for the business, C6Lodge had begun with good strategic motives by benchmarking with the best organisations in Botswana Hotel industry. Pitso explained:

‘But regarding ICT, we could have been a bit far in the sense that in 2004, I was so ambitious, and I was going around Gaborone and only to realise that the big hotels were the only ones using the Hotel management software which manages the use of all resources in the business; from housekeeping, accommodation and conference resource allocation. We spent about P70, 000 (around £5833) to purchase the system and delegated a trusted employee to train on the system. Unfortunately, after qualifying in using the system and we were ready to start running, the employee decided to quit C6Lodge with a few employees that she had trained in using the system. Now, I am left with a white elephant, so I have to re-train and also pay high costs of training once more.’

The use of mobile phones has been very beneficial especially in the earlier years of the business, when ‘telecommunications facilities in the country were very unreliable (Pitso, Managing Director).’ The use of e-mail and Internet for business communication is still minimal at C6Lodge. With regard to website development and applications, Pitso responded by saying the following;

‘We have a website; it’s only that I haven’t got people who can assist us with ICT. We need someone who can support our work by upgrading the website. We do have some improvements around and the website still remains a very old one.’

Some efforts have been made in relation to social media marketing. C6Lodge recently registered for Facebook application. It is expected that prospective tourists would either call their land line, mobile number or send email message to request for bookings. For future hotel organisation, management is preparing to train staff in the front office how to use the hotel software application. During the close of fieldwork, C6Lodge managed to activate the website and also included a blog, on some third-party website in Namibia. However, this is a latest development and further follow-up to e-commerce activities at C6Lodge were beyond the period of this study.

A website content analysis based on the 13 characteristic features of an e-commerce website (Choudhury & Choudhury, 2010) shows the following:

Table 5.6.2: C6Lodge website features (Adapted from Choudhury & Choudhury, 2010)	
Feature	Evidence in the Case
1. Security	
2. Appearance	Satisfactory
3. Adequate information about products and services,	√
4. Speed in downloading the pages	Very Slow
5. Navigation friendly	√
6. Search option/Search engine,	
7. Hyperlinks to other information	√
8. Information on member facilities	
9. History and profile of the company	√
10. Ability to obtain information in limited number of pages instead of browsing several pages	√
11. Option for providing feedback from customers	√
12. Visitor statistics	
13. Availability of interactive online activities	

Based on Table 5.6.2 above, C6Lodge's website does not provide security features. The website provides adequate company information, and services that the firm deals in, and full payment options. Hyperlinks lead to more services and contact details. Like other SME websites in this sample, there are no visitor statistics that are being captured through C6Lodge's website. Similar to C5Home, C6Lodge is very actively marketing itself on Facebook, although the feature is not visible through their website.

5.6.3 Managerial Characteristics and Perception of E-Commerce

Pitso is qualified with a bachelor's degree and appreciates what benefits ICT can bring to his firm as evidenced from the benchmarking efforts he initiated in 2004 to purchase an e-tourism software package. Yet, the exploitation of available ICT has been below expectation for a long period possibly because Pitso is encumbered with a lot of other managerial tasks. The desire to implement the hotel management software and actually train staff to use it shows that there is interest in the top manager to strategically obtain business value from ICT. However, Pitso did remark after explaining the challenges in the business, that;

‘We are eager to see ourselves also having a brand like the international firms operating around.’

5.6.4 Factors Affecting E-commerce Adoption

The factors that motivate or inhibit e-commerce at C6Lodge concern organisational issues relating to ICT infrastructure. The avenues for income generating business activities are still manually based despite the ability for C6Lodge to have purchased hotel management software. Another organisational challenge that C6Lodge faces is the lack of ICT personnel that can provide technical assistance for website improvement. The dependence on local suppliers assists in lowering costs. The use of the mobile phone to market the business locally and in the South African market has a positive impact on the business.

Pitso narrated that:

‘When we started in 2001, some of my relatives and friends thought I must be crazy to put my mobile phone number on the website.’

The use of e-mail and mobile phones does add a positive dimension but this needs a concerted effort from other personnel in the organisation. The firm aims to further develop e-commerce even though it has undergone a dormant period in the Web application due to various organisational challenges. Thus, in summary, the factors affecting e-commerce adoption at C6Lodge based on TOE framework are the following:

1. Technological:

- Slow speed of the Internet
- Constant breakdown in communication

2. Organisational:

- Manager enthusiasm and perception of e-commerce
- Available e-mail and Internet services
- Active website with order and payment services
- Owner/Manager educational background
- Lack of ICT skill and expertise
- Cost of setting-up and maintenance (lack of funding)

3. Environmental:

- Government Role
- Customer/buyers
- Economic recession
- Lack of support from local industry firms

The analysis shows that there are more significant organisational factors that drive e-commerce adoption than factors that hinder it at C6Lodge. The findings in this case are similar to C1Alpha and C5Home, although only a small portion can represent progress in e-commerce adoption. The development of e-commerce at C6Lodge has not followed the gradual path as described by Molla and Licker (2005a; 2005b), and Roger's (1995) DIT.

5.6.5 How Factors Interact to Determine the Extent of E-commerce Adoption

Table 5.6.5, developed in this study, shows several factors and the extent of e-commerce adoption at C6Lodge. The table shows that C6Lodge has managed to establish e-commerce by combining high drivers from within and outside the organisation. High drivers that are also recognised as critical factors for development of e-commerce at C6Lodge are stated as follows:

1. Manager enthusiasm and perception of e-commerce
2. Active website with order and payment options
3. Owner/manager has adequate educational background
4. Owner/manager provides innovative leadership
5. Customer/buyer propensity to pay for services through Internet.

Table 5.6.5- Factor Interaction and Extent of E-commerce Adoption at C6Lodge			
Factor	Effect of Factor	Type of Factor	Extent of interaction
Active website with order and payment options	Enables the firm to transact online.	Driver	Moderate-High
Use of third-party websites	Markets firm's products and services to international online tourists	Driver	Moderate-High
Owner/Manager enthusiasm and Innovative leadership	ICT and E-Commerce development activities.	Driver	Moderate-High
	Interest in ICT development	Driver	Moderate-High
Availability of e-mail and Internet services	Enable communication with business partners	Driver	Moderate
Government role	Indirectly affected, mainly through IT regulation. E-commerce legislation not fully functional.	Barrier	Moderate
	Main provider of local guests for seminars, workshops, etc.	Driver	Moderate
Customer/Tourist	Impact on e-commerce adoption decisions and strategic direction of firm.	Driver	Moderate-High
Suppliers	Impact on e-commerce adoption decisions and strategic direction of firm.	Barrier	Low
Cost of Setting up and Maintenance	Affects firm's ability to re-activate website	Barrier	Moderate
Low ICT Skill and Expertise	Is not available but desirable.	Barrier	Moderate
Incorporates mobile communication	Assists firm's business interaction	Driver	High

The lack of ICT skill and expertise has been a challenge to C6Lodge for many years. Other organisational challenges stood in the way of activating its website. The firm has taken advantage of third-party hosting services that provide managerial services for reservations and online payment. Other factors from the external environment such as ICT maintenance and support services are provided by an outside ICT firm. Thus, several factors that are internal and external to the organisation determine the extent of e-commerce adoption in the firm.

5.6.6 The Role of the Local Business Environment

There are a lot of activities in the local tourism industry for small firms because the government attaches particular attention to its development. C6Lodge subscribes to the hospitality and tourism association in Botswana (HATAB), and the Botswana Tourism Organisation (BTO). There have been trade-fairs, seminars, conferences, and workshops that target SMEs in the tourism sector but none had been cited by the manager Pitso to have assisted C6Lodge's e-commerce development.

5.6.7 Summary of Research Findings at C6Lodge

C6Lodge is a small firm in the tourism industry that specialises in the provision of hospitality services to local and international guests. ICT applications are applied for managing accounting information, and also for communicating through e-mail and the Internet. There is very little Internet application for searching business solutions at C6Lodge. Previous narration in this case highlights some challenges surrounding website implementation due to lack of ICT support within the firm, and also in the external environment. The firm is an example of an e-commerce failure or discontinuity that later emerges into re-adoption for e-commerce. Thus, the type of e-commerce can be described as B2C, B2B, and mobile commerce. C6Lodge can thus be characterised as early B2C, B2B, and mobile e-commerce. Drawing from the PERM concept (Molla and Licker, 2005a, 2005b), institutionalisation of e-commerce systems throughout the whole firm is not foreseeable in the immediate future.

5.7 C7Panda

5.7.1 The Nature and Characteristic of Business Environment

C7Panda is a manufacturing company located in Gaborone. It is one of the leading firms in the polyethylene foam industry in Southern Africa. The main product, the expanded polyethylene foam, has a wide range of application in many industries such as protective packaging, building and construction, bed and leisure product manufacturing. C7Panda commenced operations in 1996 with only 10 employees in a 900m² factories. In 1999, the firm underwent a management buyout with a joint-venture competitor in RSA. In 2001, C7Panda's *shares* were fully bought by the current family owners. Although the company faces various challenges, it continues to grow by supplying products to the surrounding region, especially South Africa. It now (in 2012) employs 154 people in a 10,500m² facility. C7Panda is an ISO 9000 certified citizen-owned company. It also has the Botswana Bureau of Standards (BOBS) certification, BOS ISO 9001:2000. The destination for 90% of its exports is South Africa, and only 10% is consumed in Botswana. A subsidiary company called Panda Industries-CC was incorporated in South Africa in 2005, which is responsible for marketing and distribution of all its products in South Africa. C7Panda is targeting future markets such as Zambia and Zimbabwe. The firm's managing director, Ken, has been praised by some local analyst for turning around a once gloomy scenario of C7Panda's business. Grynberg (2011), a local business analyst has commented that:

'Ken has found a very clever way to take advantage of the structure of Botswana's trade. What Botswana exports is diamonds which leaves in suitcases and what it imports, which is almost everything, comes in trucks. The trucks come largely from Gauteng in South Africa and leave empty, therefore creating a logistical nightmare for their owners as well as importers. As a result, truck owners are generally overjoyed whenever they can load-up foam for exports to Gauteng and are usually willing to pick it up at marginal cost - the cost of the fuel used to get from Gaborone to Gauteng (in South Africa). Thus, Ken has taken a national economic disadvantage and turned it to his commercial advantage.'

5.7.2 Use of ICT and Web-based Applications

C7Panda uses modern type of technology for manufacturing their products. It has received financial assistance from Botswana's citizen entrepreneurial development agency (CEDA) to improve various areas of its business. About P100, 000 (roughly US \$12,000) investment has been made for IT hardware and software acquisition. ICT is used in the manufacturing and administrative functions of the firm. Pastel accounting package is used for payroll and other accounting operations. The firm has been using e-mail and Internet mostly for communication with business partners.

C7Panda also has a website that serves to market their products and services. Visitors to their website are able to obtain company information and contact details, but not to make orders or payments. A website content analysis based on thirteen characteristic features of an e-commerce website (Choudhury & Choudhury, 2010) shows the following in Table 5.7.2.

Feature	Evidence in the Case
1. Security	
2. Appearance	Less satisfactory
3. Adequate information about products and services,	√
4. Speed in downloading the pages	Very Slow
5. Navigation friendly	√
6. Search option/Search engine,	
7. Hyperlinks to other information	√
8. Information on member facilities	
9. History and profile of the company	√
10. Ability to obtain information in limited number of pages instead of browsing several pages	√
11. Option for providing feedback from customers	√
12. Visitor statistics	
13. Availability of interactive online activities	

The features of C7Panda's website are somewhat static and less inviting to a visitor. There is lack of appeal in form of pictures or images to show the products being offered by the firm, and there is also no interaction with visitors to their website.

5.7.3 Managerial Characteristics and Perception of E-Commerce

The managing director, Ken, has been in the company for over 10 years, after taking over from a troubled merger with a foreign firm in 2001. The perception of management concerning e-commerce adoption is good as Ken has participated in various forums that are aimed at improving the manufacturing industries' position in the country. As a graduate of marketing from the University of Botswana, Ken was first employed as a production manager in the previous structure of the firm before he and his wife later bought C7Panda. He later qualified from the Botswana Business School with a Masters degree in Business Administration whilst undertaking his responsibilities of improving the business profile of the firm.

Regarding the quality of management that exists at C7Panda, a professor from a local institute of development and investment analysis (Grynberg, 2011) cites Ken's business acumen and vision when he made the following statements:

“Our business works 24/7- we are committed to quality, delivery and excellence.” These sound like just so many words that you hear from businessmen but in a low margin business like foam, being able to provide buyers with a product that is 'ready on time' lowers the carrying cost of stock to the buyer (usually in South Africa) and gives a remote supplier like C7Panda in Botswana a competitive edge.’

Ken has expressed optimism in further employing e-commerce in the firm, especially the use of e-mail and Internet. However, he was reluctant that employing web applications in C7Panda would be beneficial for the firm. He defended his views by saying that the local business environment was still very traditional in its undertaking and that most of C7Panda's suppliers and customers were comfortable with just employing e-mail and Internet

applications. These sentiments are similar to earlier views by Ken before the beginning of field-work in 2008.

5.7.4 Factors affecting E-commerce Adoption

The progression to adopt and use of e-commerce at C7Panda was determined by their customers' way of doing business, according to the Ken. The availability of e-mail and the Internet has assisted in improving communication between the firm and its customers. These methods are used in combination with traditional tools such as the use of fax, telephone (or mobile communication), for business interaction. A challenge to fully embark on e-commerce was the *access to Internet*, which according to Ken, was '*a big problem.*' The firm's website accomplishes marketing objectives; therefore, there are no order or payment services that may be pursued through it.

The local business environment is trying to provide incentives by allowing social networking among manufacturing SMEs but the environment is still weak at stimulating e-commerce activities in this sector. The global economic recession of 2008-2010 greatly affected business at C7Panda because customers in South Africa and the local Botswana market reduced their buying ability. In summary, following factors based on TOE framework affect e-commerce adoption at C7Panda:

1. Technological:
 - Slow speed of the Internet
 - Constant breakdown in communication
2. Organisational:
 - Manager enthusiasm and perception of e-commerce
 - Available e-mail and Internet services
 - Active website for marketing purposes
 - Owner/Manager educational background
3. Environmental:
 - Government role

- Customer/buyers
- Economic recession

5.7.5 How Factors Interact to Determine the Extent of E-commerce Adoption

C7Panda highly depends on the regional market for its polythene products especially in South Africa. Thus, customer preferences in the external factors affect its e-commerce adoption decisions. Ninety-percent of its customers are based in South Africa and ten percent are based in Botswana. The economic recession affecting its customers and suppliers also plays negatively for C7Panda. The local business environment is trying to provide incentives by allowing social networking among manufacturing SMEs but the environment is still weak at stimulating e-commerce activities in this sector. Table 5.7.5, developed in this study, shows the factors and the extent of e-commerce adoption in the firm.

Factor	Effect of Factor	Type of Factor	Extent of Interaction
Available e-mail and Internet	Used for communication,	Driver	High
Active website	Useful for marketing	Driver	Moderate
Customer preference	Mainly from South Africa, provides market for foam	Driver	Moderate
Poor/slow access to Internet	Unreliable Internet access with intermittent network failures due to low bandwidth.	Barrier	Moderate
Government Role	Provides inadequate e-commerce legislation	Barrier	Low-Moderate
Suppliers	Affects mode of business transaction with the firm	Barrier	Low-Moderate
Nature of finished Product	Impacts the type of e-commerce development allowing the 'feel and touch' features to approve finished product	Barrier	Moderate
Owner/Manager Characteristics	Enthusiasm about ICT and E-Commerce activities.	Driver	Moderate

The role of government can be described as low in terms of providing e-commerce regulation and policy. At the organisational level, the *slow speed of Internet* has been described to be a big problem for business undertakings at C7Panda.

The Managing director and owner of C7Panda reported that for e-commerce activities to develop in his firm, their customers and suppliers must be compliant and also moving at the same pace with C7Panda. Since the finished product needs to be physically examined, the type of e-commerce that needs to be adopted must suit these conditions and at the same time, assist in cutting cost for the firm. For C7Panda, it is cheaper to direct their finished product to the South African market, where there is already a clearing firm, which is a subsidiary of C7Panda. These conditions have caused the firm to maintain the current e-commerce status.

5.7.6 The Role of the Local Business Environment

C7Panda belongs to an association of manufacturers known as ‘The Botswana Export and Manufacturers Association (BEMA). BEMA members have an e-card, an interactive CD that showcases BEMA members and their products and services to the global world. Future prospects in this area include the development of a trading portal in the form of an export house.

5.7.7 Summary of Research Findings at C7Panda

C7Panda is a medium manufacturing firm that manufactures foam products, mainly for the South African market. Over ninety percent of the products are consumed in the South African market and the remainder is consumed locally mainly by the GOB. There is moderate use of e-commerce in the firm as e-mail and Internet are both used for communication with customers and suppliers. The website contributes minimally in e-commerce adoption as a marketing channel; displaying information about the firm, and without order or payment facilities. Therefore, the type of e-commerce being pursued in the firm can be described as B2C, B2B, and mobile commerce.

C7Panda has faced tough challenges in its growth, with several changes in its management structure, although the firm has rapidly grown from a small to medium firm over the years. The revelation of the case shows that the current management has worked very hard to make the firm competitive, despite some challenges that C7Panda has encountered in the past. The extent of e-commerce is determined by the external environment, mainly their customer and

supplier preferences, which at the moment incline towards using e-mail and Internet applications. The local environment has a minimum impact on e-commerce adoption in the firm. The role of the GOB in facilitating e-commerce regulation in the manufacturing sector has been unsatisfactory according to the views of management. C7Panda can thus be characterised as early B2C, B2B, and mobile e-commerce.

5.8 C8Estate

5.8.1 The Nature and Characteristic of Business Environment

C8Estate is a small manufacturing firm, specialising in the production of bricks for housing. The firm began operations in August 2004. There are sixty-one full-time staff in the firm; comprising eleven administrative staff, and fifty involved in the actual production of housing materials. The first challenge at the beginning of the firm was how to fund the business idea, and obtain land for operation purposes. The next challenge was manpower; that is, getting the relevant people who knew what needed to be done. The worker's individual health plays a role in the development of the firm. A majority of C8Estate's workers are blue-collar people and as such, a number are out on "sick leave" on many occasions. The business also faces challenges from an influx of products from South Africa, and competition from Chinese technology which is usually priced lower than C8Estate's machines. The company faces very stiff competition mostly from Chinese manufacturers who dictate some pricing of products on the market. There are eleven other competing firms operating in Gaborone in this sector, thus competition is very high. C8Estate's bricks are all consumed in Botswana mostly by individual customers.

5.8.2 Use of ICT and Web-based Applications

The firm has eleven computers, which include two servers and two laptops. C8Estate uses an accounting software package, AccPac, for managing accounting and financial information. The software also facilitates online ordering, and electronic funds transfer for payments. The use of ICTs in the firm can be categorised into three: 1) For communication, using e-mail, 2) for processing accounting and financial information, and 3) For Internet search for new business ideas and new product offerings. The general manager explained that he uses Skype

internet facility to chat and survey products from Asia, even though their website was not yet in operation at the time of the interview. In terms of ICT support and maintenance of applications, C8Estate obtains assistance from a local ICT firm.

The website for the firm had just been developed at the time of the interviews but had not yet been commissioned. Management hoped that this would improve marketing and ordering of items. The use of ICTs has brought some benefits to C8Estate, allowing internet banking, accounts and finance administration, and communication using e-mail and Skype services. These include versatility and ability to generate summarised reports of business transactions from the accounting system. Another advantage is the ability to perform backups; such as off-site backups with an Internet service provider. Therefore, the types of e-commerce being pursued in the firm can be described as B2C, B2B, and mobile commerce.

5.8.3 Managerial Characteristics and Perception of E-Commerce

Of the two key informants in the firm, the manager and owner, Peter, was more informative and engaging in the conversation than the finance manager, Stella. Stella was unsure if there were any benefits that could be obtained from ICT applications in the firm. She also wondered if there were other competing firms in Botswana who had improved their business operations using web-based applications. Peter explained that he employed Skype Internet application for communication with prospective business partners in Asia. He was optimistic that the corporate website would be active soon.

5.8.4 Factors affecting E-commerce Adoption

Several factors can be identified from the characteristics of C8Estate. The use of e-mail and Internet has improved business communication in the firm. The corporate website is still not operational although plans for its establishment were very advanced. Peter explained that their customers and other stakeholders needed to be ready to fully employ e-commerce adoption. The current Internet speed in the country was not encouraging e-commerce, and the lack of e-commerce policy for online transactions was not motivating the firm. The status of ICT applications in the local market has an impact on the nature of e-commerce that C8Estate adopts. Stella, the finance manager, was unsure whether other peers in the industry employed

web-based applications in their business. In summary, the following factors based on the TOE framework affect e-commerce adoption at C8Estate:

1. Technological:
 - Slow speed of the Internet
2. Organisational:
 - Available e-mail and Internet services
 - Lack of website
 - Lack of ICT skill and expertise
 - Owner/Manager educational background an advantage
 - Good leadership and innovative abilities of owner/manager
3. Environmental:
 - Customer/buyers preferences are low
 - Government role as regulator for e-commerce policy is low
 - Lack of support from local industry firms

5.8.5 How Factors Interact to Determine the Extent of E-commerce Adoption

The interaction of factors at the three levels based on the TOE framework can provide a clue of the extent of e-commerce adoption in the firm. At the organisational level, e-mail and Internet assist in accomplishing e-commerce but the lack of an active corporate website is a major barrier for web-based services such as ordering or payment. There is need for ICT expertise to manage e-commerce applications in the firm. Funding will be required to provide training to relevant staff on changes to the business operations when the corporate website becomes active. This will relieve pressure from the managing director who is the only person currently charged with e-commerce development in the firm. Table 5.8.5, developed from this study, shows the factors and how they interact to determine the extent of C8Estate's e-commerce adoption.

Table 5.8.5 – Factor Interaction and Extent of E-commerce Adoption at C8Estate

Factor	Effect of Factor	Type of Factor	Extent of interaction
Lack of active web site	Prevents web-based marketing decisions.	Barrier	High
Slow speed of Internet	Affects access speed for browsing and searching activities.	Barrier	Moderate
Lack of credit card payment facilities/ Inadequate e-commerce laws	Affected ability of local consumers to pay online Prevents local consumers & firms from participating in e-commerce.	Barrier Barrier	High High
Owner/Manager Characteristics	Enthusiastic about ICT and E-Commerce activities. Uses Skype Internet application	Driver	Moderate-High
Available e-mail and Internet services	Enable communication with business partners	Driver	Moderate
Government Role	Indirectly affected, mainly through IT regulation. E-commerce legislation not fully functional.	Barrier Driver	High Moderate
Customer/buyers preference	Individual customers dictate business norms by physically visiting the firm	Barrier	High
Suppliers	Provide little motivation as the SME deals with regional firms that are not e-commerce ready.	Barrier	Moderate-High

There are several factors that act as high or moderate barriers at C8Estate. These are:

1. Lack of active website to advance e-commerce intentions
2. Customer/buyers preference which is locally defined
3. Slow speed of the Internet
4. Government role as policy regulator/Inadequate e-commerce laws
5. Lack of credit card payment facilities
6. Supplier preferences

5.8.6 The Role of the Local Business Environment

C8Estate belongs to BOCCIM and an association of companies in the manufacturing of bricks in Botswana. However, the membership does not assist in the development of e-commerce activities in the firm. There are few social ties with other firms in the industry due to the influx of Chinese manufacturers on the market (Chen, 2009).

5.8.7 Summary of Research Findings at C8Estate

C8Estate is a small manufacturing firm that manufactures housing products such as bricks for consumption in the local market. The use of e-commerce in the firm can be described as low-to moderate as e-mail and Internet are mainly used by few personnel in the firm for communication purposes. There is no corporate website although the managing director confirmed that it would be commissioned soon. Therefore, the type of e-commerce being pursued in the firm can be described as B2C, B2B, and mobile commerce. The general business faces stiff challenges due to the influx of foreign companies from China. The extent of e-commerce is determined by the external environment, mainly, the customer preferences, which still relied on e-mail and Internet applications. The local business environment impacts lowly on e-commerce adoption activities in the firm. The role of the GOB in facilitating e-commerce regulation in the manufacturing sector has been unsatisfactory due to its inability to enact e-commerce policy to guide all stakeholders in the local environment.

5.9 C9Autoco

5.9.1 The Nature and Characteristic of Business Environment

C9Autoco started business operations in 1999 as part of the Star Group of companies. It has eighteen employees. C9Autoco manufactures a range of bakkie accessories such as canopies (fibre glass), steel canopies, fittings and fabrications. There are two main suppliers of materials to C9Autoco's who are based in South Africa. The finished product from C9Autoco is mainly consumed in Botswana, with the government of Botswana being the main customer, consuming over 90% of the products. A small portion is sold to private companies and individual customers.

5.9.2 Use of ICT and Web-based Applications

There are eight personal computers and four laptops at C9Autoco. Pastel software is used to perform accounting, payroll and other financial services. Online linkages to suppliers and customers can also be performed through the accounting system. The software was first commissioned in 2006. The use of ICTs has proved to be beneficial to the firm. The following areas have been improved through ICTs; 1) Using e-mail for communication

purposes, 2) processing accounting and financial information, and 3) Searching for new business ideas and product offerings using the Internet. The installation and maintenance of the computer system at C9Autoco is outsourced from an external organisation. The personnel that use ICTs are in administration, undertaking such tasks as accounting and order processing. The Interviewee explained that only the general manager used the Internet extensively to search for business opportunities. C9Autoco have no website, nor an ICT unit. Therefore, the characteristic of e-commerce being pursued in the firm can be described as B2C, B2B, and mobile commerce.

5.9.3 Managerial Characteristics and Perception of E-Commerce

The researcher made a fair assessment of the manager's attitude to e-commerce based on observations and the information gathered from the only informant, Jenny. The managerial attitude towards e-commerce may be considered to be low in the firm, based on the observations made by the researcher. The use of e-mail for communication, and Internet for business search was only performed by the general manager. Other key personnel in the firm did not participate in any ICT usage, except three staff that worked on the accounting and financial data.

5.9.4 Factors affecting E-commerce Adoption

The level of enthusiasm for ICT and e-commerce opportunities needs to rise above the norm by incorporating other key managers and staff as well. Training would need to be incorporated at some stage to allow full understanding of what ICT and e-commerce can bring to C9Autoco. With this comes the need for funding to allow such personnel to be trained, and also, to acquire the necessary infrastructure for e-commerce to work. The following is a summary of factors that affect e-commerce adoption based on TOE framework at C9Autoco:

1. Technological:

- Slow speed of the Internet

2. Organisational:

- Available e-mail and Internet services mainly for communication

- A general lack of appreciation of e-commerce adoption in the firm
- Available Internet services for communication and search
- Lack of website
- Lack of ICT skill and expertise
- Leadership potential and innovative abilities of manager

3. Environmental:

- Customer/buyers preferences for e-commerce adoption is low
- Government role as regulator for e-commerce policy is low
- Lack of support from local industry firms

5.9.5 How Factors Interact to Determine the Extent of E-commerce Adoption

A consideration of organisational and environmental factors may be useful to understand the interaction of factors. The application of e-mail and Internet is done by the general manager only. There is three other staff tasked with the management of accounting and financial data. The lack of a corporate website for C9Autoco does not allow the organisation to be well positioned for web-based applications such as ordering and payment for goods. Other features such as social network marketing may need to be reserved for now until a website is in place. C9Autoco still relies on the use of fax, telephone/mobile phone, and e-mail to make orders. Some orders are placed through the accounting system. After ordering, inputs to the business are sent by road from South Africa. C9Autoco's suppliers are key determinants in the use of ICTs and e-commerce. The firm obtains assistance from a local firm to maintain ICT hardware and software. There are a number of barriers in the local and external environment too, that inhibit meaningful development of e-commerce in the firm. Since most of their products are consumed locally, the customers' way of doing business would dictate the trend of business in future. Local collaboration with other firms in the manufacturing industry has been very limited. There is financial limitation to advance ICT use in the firm, and the economic recession of 2008-2010 is one of the reasons for the tight financial situation at C9Autoco.

5.9.6 The Role of the Local Business Environment

The local environment has not assisted C9Autoco with e-commerce development. The firm has also not subscribed to key organisations such as the Botswana Chamber of Commerce, Industry and Manpower (BOCCIM), and the Local enterprise authority (LEA). This situation limits its participation and engagement with peer organisations in the local environment.

5.9.7 Summary of Research Findings at C9Autoco

C9Autoco is a small manufacturing firm that manufactures car products such as canopies for trucks and vans. The market of C9Autoco's is mainly based in the local environment; with the GOB being the largest buyer of over 90% of its products. The remaining 10% is consumed by other private companies and individual customers. C9Autoco uses Pastel software application for most of its business transaction. The use of e-commerce in the firm can be described as low-to-moderate, as e-mail and Internet are mainly used by the manager in the firm. The use of mobile commerce is also popular to communicate with staff and other business partners. Thus, e-commerce accomplishes the purpose of communication in the firm. Some business research using Internet may be performed only by the general manager. There is no corporate website, and it was not known when this initiative would be undertaken. Therefore, the type of e-commerce being pursued in the firm can be described as B2C, B2B, and mobile commerce. Factors within and outside the firm contribute to e-commerce adoption, such as customer and supplier preferences.

The results of the study at C9Autoco needed further investigation from a key manager that was familiar with e-commerce adoption issues in the firm. This was not possible based on the explanations that have been given earlier in sections 4.2.5 and 4.5. In addition, there was no documentation pertaining to ICT application in the firm that could provide further information to the researcher. In view of these issues, it becomes difficult to confirm the results of the study in the absence of such interactions. Owing to this, cross-case discussions based on C9Autoco's findings will be limited due to insufficient grounds to defend the results of the study. However, the summary of the findings are presented where applicable in some parts of Chapters 6 and 7.

The next section provides a summary of the whole chapter.

5.10 Summary

This chapter set out to provide the contextual view of e-commerce adoption in the selected SMEs. Six broad categories as defined in the contextual framework are used to present each case. The categories are: the nature and characteristic of business environment; use of ICT and Web Applications; managerial characteristics and perception of e-commerce; factors that affect e-commerce adoption or the lack of it; how the factors interact to determine the level of e-commerce adoption in the firm, and the role of the local business environment with respect to each of the SMEs. Each of the cases is presented with a summary of its e-commerce environment.

Chapter 6

Discussion of Findings

6.0 Introduction

Having reported on each of the individual cases in the previous chapter, this chapter discusses the findings from the (C1Alpha, C2Beta, C3Gamma, C4Teq, C5Home, C6Lodge, C7Panda, C8Estate, and C9Autoco) cases based on the research questions and the literature review. The first section discusses the nature and characteristics of SME e-commerce environments as depicted from the selected SMEs whilst making comparisons with the literature review. Also, a summary of each of the SMEs e-commerce environments is presented. The second section discusses the factors that affect e-commerce adoption or non-adoption as revealed from the empirical findings. The third section discusses the interaction of the factors in determining the level of e-commerce adoption in the SMEs. This is followed by a review of e-commerce development with particular focus on the nature of e-commerce progression, and the impact of Web 2.0 and social networking media. The chapter then discusses the application of e-commerce adoption theories with respect to the results of the current study, followed by a review of the national e-readiness and the role of government. A summary and conclusion is presented at the end of the chapter.

6.1 The Nature and Characteristic of Botswana SME E-commerce Environment

The nature and business characteristics of the selected SMEs discussed thus far define the business objectives and what the organisation intends to achieve with respect to e-commerce.

6.1.1 Summary of the Nature and Characteristic of E-commerce Environment

6.1.1.1 C1Alpha

The first case is a small tourism firm, C1Alpha, which sells art and craft products, and also promotes traditional Botswana culture through art exhibitions, music shows, and various other activities. The use of ICT is very basic in the firm, assisting in the management and

processing of financial data. There is no ICT function or department. E-commerce can be described in the use of e-mail and Internet for communication, and the application of the Web for marketing the firm's products and services. The website also assists in the placement of orders. Orders are confirmed through social interaction by telephone or e-mail. This is believed to allay fears of mistrust between the potential buyers and the firm. Payment for goods is done through electronic funds transfer or by credit card. The nature and business characteristics reveal a socially-inclined B2C, B2B, or mobile commerce in the firm. C1Alpha's e-commerce development has benefited from its manager's positive interest and belief in ICT opportunities. The firm obtains assistance from local ICT firms for maintenance of its ICT applications and Web hosting services. The local business environment provides little assistance in the development of e-commerce in the firm.

6.1.1.2 C2Beta

The second case is a medium ICT firm, C2Beta. It provides services mainly to the GOB and other public and private firms. It has both human and technical ICT skills and an ICT department. C2Beta has several ICT applications for performing administrative functions. The nature of e-commerce in the firm can be described in the use of e-mail and Internet for communication, and searching for business solutions. The Web is mainly used for marketing the firm's products and services. C2Beta's e-commerce strategy is defined around the local business partner, the GOB and the firm's internal processes. The reliance on the GOB is also a limitation to the advancement of e-commerce in the firm. C2Beta is therefore applying B2B, B2C, B2E, intrabusiness, and mobile commerce.

6.1.1.3 C3Gamma

The third case is a medium ICT firm, C3Gamma, which provides various ICT support services to the government of Botswana and other local firms. There are several ICT applications and adequate human and technical ICT skill to perform various tasks. The nature of e-commerce at C3Gamma is similar to C2Beta. It can be described by the use of e-mail and Internet for communication with the firm's customers and suppliers. The Web is mainly used for marketing the firm's products and services.

6.1.1.4 C4Teq

The fourth case is a small ICT firm, C4Teq, which has been in operation since 2001. The firm began by selling mainly IT hardware and software. Its e-commerce development can be described as the use of e-mail and Internet for communication, and performing searches for business solutions. The application of the Web did not materialise in the earlier years due to several challenges mostly emanating from the unpreparedness of the local business environment, lack of legal framework for e-commerce and lack of payment facilities in the local market.

6.1.1.5 C5Home

The fifth case is a small tourism firm, C5Home, which has been in operation since 2001. The use of ICT is very basic in the firm, assisting in the management and processing of financial data. There is no ICT function or department. E-commerce can be described in the use of e-mail and Internet for communication, and the application of the Web for marketing the firm's products and services. Third-party agents undertake most of the order-handling and cash payments. Internal and external factors have assisted in the development of e-commerce in the firm. The local business environment provides little assistance in the development of e-commerce in the firm.

6.1.1.6 C6Lodge

The sixth case is a small tourism firm, C6Lodge, which has been in operation since 2001. The use of ICT is very basic in the firm, assisting in the management and processing of financial data. E-commerce has been described in the use of e-mail and Internet for communication for several years. The corporate website which had been inactive for several years was reactivated at the close of fieldwork. The firm has now employed third-party websites to market its products and services, placement of orders, and undertaking cash payments using international credit cards. Thus, the types of e-commerce at C6Lodge can be described as B2C, B2B, and mobile commerce.

6.1.1.7 C7Panda

C7Panda is a medium manufacturing firm that manufactures foam products, mainly for the South African market. There is moderate use of e-commerce in the firm as e-mail and Internet are both used for communication with customers and suppliers. The website contributes minimally in e-commerce adoption as a marketing channel; displaying information about the firm, and without order or payment facilities. The type of e-commerce being pursued in the firm can be described as B2C, B2B, and mobile commerce.

6.1.1.8 C8Estate

C8Estate is a small manufacturing firm that manufactures housing products such as bricks for consumption in the local market. The use of e-commerce in the firm can be described as low-to moderate as e-mail and Internet are mainly used by few personnel in the firm for communication purposes. There is no corporate website although the managing director confirmed that it would be commissioned soon. Therefore, the type of e-commerce being pursued in the firm can be described as B2C, B2B, and mobile commerce.

6.1.1.9 C9Autoco

C9Autoco is a small manufacturing firm that manufactures car products such as canopies for trucks and vans. The use of e-commerce in the firm can be described as low-to-moderate; e-mail and Internet are mainly used by the manager in the firm. The use of mobile commerce is also popular to communicate with staff and other business partners. Thus, e-commerce accomplishes the purpose of communication in the firm. Some business research using Internet may be performed only by the general manager. There is no corporate website. Therefore, the type of e-commerce being pursued in the firm can be described as B2C, B2B, and mobile commerce.

The next section deals with some features of the SME e-commerce environment as cross-case analysis.

6.1.2 Features of the E-commerce Environment

6.1.2.1 Organisational Structure

Based on impressions from the observations made during the frequent visits to the SMEs, the organisational structure of the small firms such as C1Alpha, C4Teq, C5Home, C6Lodge, C7Panda, and C8Estate has been largely informal, corroborating previous findings by Parker & Castleman (2009), Wilson et al., (2008), Chibelushi & Costello (2009), and Mehrtens et al., (2001), whereas the medium-sized firms such as C2Beta and C3Gamma leaned more to the formal structure. The structure of C7Panda leans to the informal structure possibly due to the owner/manager feature as a family-owned business.

6.1.2.2 Managerial Attitude and E-commerce Characteristics

All managers/owners were conversant with their organisation's policy and objectives regarding e-commerce adoption and how their firms intended to achieve a business value. However, some senior managers, such as the Finance Manager in C8Estate were unclear of the value of e-commerce in their firm. Furthermore, C5Home and C1Alpha can be described to have e-commerce that is critical for their firms. This goes beyond business necessity as the organisations desire to derive business value from it. The results present evidence of financial value gained from e-commerce activities in the firms. C6Lodge is also set to follow this path, and thus, this study describes its e-commerce progression as moving beyond business necessity to being critical for the firm.

The medium firms (C2Beta, C3Gamma, and C7Panda) can be described to have e-commerce which is a business necessity in an organisation. The aim in the business necessity is therefore to satisfy the needs of customers and suppliers. There is no motivation in these firms to go beyond their boundaries eventhough they are endowed with adequate resources to do so. C4Teq and C8Estate are firms that depend on e-mail and Internet to define their e-commerce progression and further, do not present a corporate website. This study describes their e-commerce progression as business necessities that require managerial attention. In both cases, the firms are undergoing re-organisation to consider web-based applications that can provide business value for their firms. C4Teq will be returning with a new strategy for the website,

whereas, C8Estate will be presenting it for the first time. C9Autoco could not present any information on this aspect.

6.1.2.3 Industry Characteristics

The ICT industry has been represented by three firms, C2Beta and C3Gamma, which are medium-sized, and C4Teq, which is a much smaller firm. A common feature amongst the three firms is that they are defined as service providers to the government of Botswana and other public organisations. Whereas C2Beta and C3Gamma are not financially constrained to further develop e-commerce, their business strategy and emphasis on the local market largely defines the nature of e-commerce adoption. As Henry (C3Gamma) had explained, *‘the interest of our organisation does not lie in servicing individual clients in the global market.’* Thus, their business strategy of offering services to the GOB is a barrier as well as a driver to further developments in e-commerce activities. The GOB is a barrier in relation to its inability to improve e-commerce policy and its inclination to traditional methods of business using tenders. The GOB is a key driver of e-commerce because it has allowed some business transactions with these firms using e-mail and the Internet. C4Teq’s e-commerce development has inclined towards the application of e-mail and Internet at present although plans to employ the website for mobile phone users had been curtailed in the previous years. It has yet to redefine and focus its web-based activities which at present are inactive.

Another feature that is related to e-commerce development in the ICT firms (C2Beta, C3Gamma, and C4Teq) is the availability of ICT skill and expertise that could be useful in the design and implementation of advanced e-commerce features in the firms. However, the presence of ICT skill has not been able to give the ICT firms an added advantage in e-commerce adoption. In essence, other factors from the organisational, environmental, and technological realms of the firms (Thatcher et al., 2006) would need to be considered as they all interact to define the extent of e-commerce adoption process.

The tourism SMEs (C1Alpha, C5Home, and C6Lodge) have thrived in e-commerce adoption to the extent of utilising some means of online ordering and payment. These firms use

internal resources in their firm (aspects of RBT, Barney, 1991) and external resources from the industry (aspects of Contextualism) to advance their e-commerce adoption processes.

6.1.2.4 Use of E-mail and Internet

The use of e-mail as a means of communication is very common in all SMEs for undertaking business transactions, making contractual agreements, sourcing and requesting for orders and many other business activities. Internet is particularly useful for providing an e-mail framework, and for allowing various searchers to solve business problems. ICT SMEs (C2Beta, C3Gamma and C4Teq) have also been able to develop and adopt electronic mail systems within their firms.

Previous studies have stated that the nature of ICT is critical to assess the maturity and future technological developments in the firm (Cragg, 2008). Further development of e-commerce in the firm depends on a good foundation of ICT. However, firms may be able to use their own internal ICT or collaborate with other in the industry to support e-commerce adoption processes.

Table 6.1a provides a summary of the nature and characteristics of the eight SMEs and how they are positioned to progress in e-commerce.

Table 6.1a: The Nature and Business Characteristics

SME	Nature and Business Characteristics	Impact on E-commerce adoption decision and process
C1Alpha	Sells art and crafts products to local and international tourists. Maintains a physical shop and an online presence. Financial constraints are evident but not inhibiting e-commerce adoption. Basic ICT applications. Constrained in ICT technical and managerial skills. It employs 35 staff.	E-mail and Internet are reliable tools for communication. The firm's website markets the products and services, and allows order placement; Payments for goods ordered are made only after some e-mail or telephone conversation between the firm's manager and the prospective buyer. Credit card or other forms of payment such as EFT may be done. Social networking site using Facebook assists in marketing firm. Presents a socially-inclined B2C, B2B, and mobile commerce as critical for the firm.
C2Beta	Is a medium-sized ICT firm located in Gaborone. It services mainly the GOB and other public firms. Has both human and technical ICT skill and expertise. It has several ICT applications, including an internal mail system. The firm employs 110 staff.	E-mail and Internet are reliable tools for communication. Website exists mainly for marketing purposes. E-commerce largely defined to meet local business needs. Presents B2E, B2C, B2B, mobile, and Intra-business e-commerce as business necessities.
C3Gamma	Is a medium-sized ICT firm located in Gaborone. It services mainly the GOB and other public firms. Has both human and technical IS skills and IT department. The firm has various ICT applications, including an internal mail system. The firm employs 68 staff.	E-mail and Internet are reliable tools for communication. Like C2Beta, website exists only for marketing purposes. E-commerce internally defined for Internet research to meet local business needs. Presents B2E, B2C, B2B, mobile, and Intra-business e-commerce as business necessities.
C4Teq	Is a small-sized ICT firm located in Gaborone. It services mainly the GOB and other public firms. Has both human and technical IS skills. Specialised in wireless communications. Has internal mail system and employs 23 staff.	E-commerce is largely defined with the use of e-mail and Internet for communication purposes. Website is not active but had existed before. Uses Skype communication with global clients. Presents e-commerce using e-mail and Internet for B2E, B2C, B2B mobile and Intra-business e-commerce, as business necessities that require managerial attention.
C5Home	Is a small firm that operates as a lodge, conference centre and restaurant in a rural setting of Botswana. Its business thrives from local and international tourists. Financial constraints are cited but will not inhibit e-commerce development to higher levels. The firm employs 26 staff.	The business objectives are aligned to e-commerce development process currently taking place in the firm. E-mail and Internet are useful for business communication. Online booking and payment by credit cards for mostly international clients. Uses third-party websites to recruit tourists who make orders and pay directly to the firm. Uses social networking sites such as Facebook. Presents B2C, B2B, and mobile e-commerce as critical for the firm.
C6Lodge	Operates as a lodge, conference centre and restaurant in the peripheral area of the city of Gaborone. Basic ICT applications. Constrained in ICT technical and managerial skills. Employs 38 staff.	E-mail and Internet have defined the nature of e-commerce for a longer period in the firm. The Web application is now active but had been dormant for most part of the fieldwork. Allows ordering and payment of business transactions through third-party websites. Presents early B2C, B2B, and mobile e-commerce beyond a business necessity to being critical in the firm.

Table 6.1a The Nature and Business Characteristics (continued)

C7Panda	Is a medium manufacturing firm which manufactures foam products for export mainly to South Africa. Has ICT expertise for support of manufacturing processes, and maintenance of financial information. Employs 154 staff, with majority undertaking production work.	E-mail and the Internet have defined the nature of e-commerce mainly for communication purposes. A website exists for a narrow marketing objective. Presents B2C, B2B, and mobile e-commerce as a business necessity that requires managerial attention.
C8Estate	Is a small manufacturing firm which makes bricks and concrete for housing. Has no ICT expertise for support and maintenance. Employs 61 staff.	E-mail and the Internet have defined the nature of e-commerce for business communication. Skype communication allows interaction with potential suppliers. Website is currently under construction. Presents B2C, B2B, and mobile e-commerce as a business necessity that requires managerial attention.
C9Autoco	Is a small manufacturing firm which makes vehicle canopies. Has no ICT expertise for support and maintenance. Employs 18 staff.	E-mail and the Internet are narrowly defined in the firm as the nature of e-commerce for business communication, which is only used by the general manager. Presents B2C, B2B, and mobile e-commerce as a business necessity that requires managerial attention.

6.1.2.5 Use of Website and Web-based Applications

Several SMEs have websites in the sample such as; C1Alpha, C2Beta, C3Gamma, C5Home, C6Lodge, and C7Panda. However, their advance to transactional stages of e-commerce (Karakaya & Shea, 2008; Rao et al., 2003) has taken different routes. C1Alpha has preferred to engage in social interactions through e-mail to first familiarise themselves with their international clients rather than directly accept payments through credit card. This way, they hope to create and maintain a long-lasting relationship with their clients. Martinsons (2008) also describes a similar type of e-commerce in the Chinese environment, based on relationships.

C2Beta, just like C3Gamma are comfortable to maintain their website features in advertising and marketing mode even though they are financially capable of including order and payment functionalities on their websites. C5Home which has had a late entry into the tourism industry in comparison to the medium-sized firms (C2Beta, C3Gamma, and C7Panda) has included

income generating activities by using third-party agents who manage most of its international bookings.

Two SMEs (C4Teq and C8Estate) do not have an active corporate website. In the case of C4Teq, a website had existed in previous years. The main reasons can be attributed to the lack of enabling environment for web-hosting services and the lack of credit cards among the local consumers that it had targeted. However, these circumstances have improved somewhat in the past few years, although there is still no e-commerce policy to guide e-commerce transactions. The situation of credit cards has greatly improved with several financial institutions offering debit and credit cards that can assist in making payments. The firm has indicated that the website would be active soon. C8Estate is the newest firm in the sample going by the year of establishment, and has been waiting to have a website commissioned for its business.

C6Lodge had an opportunity to benchmark with five-star hotels in Gaborone since 2004, but the manager (Pitso) explained that the process had stalled due to several reasons, including mismanagement and lack of focus by some of his staff. E-commerce activities in the firm have involved the use of e-mail and Internet for several years and like C4Teq, its web application has faced stiff challenges such as the lack of support and maintenance of the website. Thus, the website has been inactive for several years and the firm just emerged at the close of fieldwork with order and payment options on its website. A blog also exists to market C6Lodge's online business.

A notable feature of the SME e-commerce environment in the selected sample is the use of simple website applications, such as is the case with C1Alpha, C2Beta, C3Gamma, C5Home, C6Lodge, and C7Panda. There is no integration with other ICT applications and external systems from the supplier or customers, which would indicate maturing e-business systems in SMEs like those described by Hong & Zhu (2006).

An ICT area that is becoming popular in the SMEs is the use of social networking media (SNM) which can be valuable for marketing and interactions amongst SMEs (Bell & Loane, 2010). In this study, most firms have incorporated some social networking media such as Facebook or Skype applications, although none of the firms could attribute direct benefits from their use. Although C4Teq and C8Estate have no website, the firms have managed to include Internet applications that enhance communication for B2B e-commerce such as Skype services. A summary of the features of e-commerce adoption in the selected firms is presented in Table 6.1b.

Table 6.1b E-commerce Adoption and Non-Adoption Features in the Selected SMEs									
	C1Alpha	C2Beta	C3Gamma	C4Teq	C6Lodge	C5Home	C7Panda	C8Estate	C9Autoco
No active website				√				√	√
Use e-mail for communication and Internet for searching	√	√	√	√	√	√	√	√	√
Web presence with marketing features	√	√	√		√	√	√		
Shopping cart/booking/Payment integration on websites					√	√			
Alternate payment methods excluding website	√								
Incorporates mobile phone devices	√	√	√	√	√	√	√	√	√
Social networking tool: Skype		√	√	√	√	√			
Social networking tools: Facebook,	√	√	√		√	√			

6.2 Factors Affecting E-commerce Adoption and Non-Adoption

The discourse that investigates the factors affecting e-commerce adoption in the selected SMEs shows that the factors emerge differently depending on the context of the SME. The next sub-sections discuss the socio-technical and contextual aspects of e-commerce adoption factors.

6.2.1 Managerial Characteristics and Perception of E-commerce Adoption

Previous studies have emphasised the position of the owner and/or manager role in enhancing e-commerce innovation in their firm (Jeyaraj et al., 2006; Chatterjee et al., 2002; Thong, 1999). In fact, managers of small and medium-sized firms determine not only the business vision and objectives, but also what type of markets and ICT tools their firms should employ. The cases of C1Alpha and C5Home highlight the positive role that proactive and innovative managers have, despite the many set-backs, in trying out various e-commerce initiatives in their organisations. The educational qualifications of all managers in the selected study does assist in making the right decisions for e-commerce adoption as almost all managers have above-minimum qualifications in managing their firms. The results are similar to Chibelushi & Costello's (2009) findings among ICT oriented SMEs in the West Midlands of the UK.

The cases of C2Beta, C3Gamma, and C7Panda highlight another dimension of the managerial role played by top managers in the decision to adopt e-commerce. SME managers have to drive their organisations to competitively realise strategic e-commerce benefits for their firms (Chau, 2003). As one of the managers (C2Beta) had commented, '*e-commerce would have 'to fit in into the business objectives of the organisation in a way than brings more value than the current means being employed.'*' This understanding aligns with previous studies that aim to seek the strategic objectives for pursuing e-commerce adoption in organisations rather than to merely seek ICT interests alone (Porter, 2001; Kathuria & Igarria, 1997; Luftman et al., 1993; Chau, 2003).

6.2.2 Skilled ICT Personnel

A feature that is common in the small firms such as C1Alpha, C5Home, C6Lodge and C8Estate is the lack of ICT support for maintenance of e-commerce applications from within the firm. C1Alpha's business objectives define it as a small firm that desires to sell art and craft products to local and international customers. This gives it a drive despite the challenge of lack of funding to maintain ICT applications and a corporate website. C5Home's geographical location that is far from the city of Gaborone causes it to depend on ICT more to reach out to prospective clients within and outside Botswana. C6Lodge has just emerged from some organisational challenges by reactivating and providing online transaction facilities on its website. C8Estate prefers to focus on its core business, and like other small firms discussed above, the firm obtains assistance from external firm for ICT support and maintenance. This finding corroborates previous findings in developed (Wilson et al., 2008) and developing countries (Uwizeyemungu & Raymond, 2011; Kapurubandara, 2009; Ahmed, Zairi & Alwabel, 2006). However, the impact of this factor has been offset by outsourcing some of the ICT tasks to ICT companies. Meanwhile, the medium firms (C2Beta and C3Gamma) have had adequate ICT resources and they managed to develop their websites using internal ICT staff. C7Panda also obtained assistance from an ICT firm to develop their website. Later, their position improved by obtaining financial assistance through a CEDA loan.

6.2.3 Availability and Slow Speed of the Internet

The availability and the slow-speed of Internet were cited by managers in seven SMEs; C1Alpha, C2Beta, C3Gamma, C4Teq, C5Home, C7Panda and C8Estate as barriers to e-commerce adoption. This is also a well-acknowledged problem in Botswana's national ICT policy document (Maitlamo, 2004). However, the response to this barrier in each of the SMEs varies somewhat. In the case of C1Alpha, the slow speed of the Internet is a serious challenge as they intend to increase the number of products on their website and introduce direct payment through the credit card. C2Beta and C3Gamma have expressed the need to communicate with their ICT staff in the field and so e-mail is very crucial for them. Internet is equally important to enable research for business solutions to clients' problems. For C4Teq

and C8Estate, the smooth-running of e-mail and Internet applications is critical to sustaining current e-commerce activities in the firm as there is no active website yet. Similarly C5Home also depends on the smooth-running of the Internet to keep the business afloat with its international clients and the appointed agents. C6Lodge and C7Panda also need to use e-mail and Internet for communication and searching for business solutions, respectively. The results of this study are similar to findings by Harindranath, Dyerson, & Barnes (2008) who studied ICT adoption and use in SMEs in the southeast of England. The authors observed the increased dependence on e-mail and Internet by SMEs.

6.2.4 Cost of Setting-up and Maintaining Internet Applications

The four small enterprises (C1Alpha, C5Home, C4Teq and C6Lodge) expressed limitations in financial ability to set-up ICT infrastructure and maintain an active website, a concern noted in previous literature (Jeyaraj et al., 2006; Lee et al., 2003; Sarosa & Zowghi, 2003) but their management responded differently to this challenge. In the case of C1Alpha, the manager (Neela) explained that the costs of maintaining a website and its applications were too high and they could not afford to hire skilled ICT personnel even though they needed one so much. An informant at C5Home (Nicky) remarked that any firm seriously considering e-commerce adoption needs to plan in advance to absorb the cost of Internet applications. C4Teq and C6Lodge were seriously affected by high maintenance costs and other logistical challenges such that their websites became inactive for a long while. The medium-sized firms C2Beta and C3Gamma did not have any complaints with regard to costs possibly due to the diversified nature of their business services in the recent past. Yet, they still defined e-commerce in relation to their business strategy (Luftman et al., 1993) by targeting a locally-based market for e-commerce adoption. Therefore, despite the barriers as described above, we still find that the most hard-hit organisations, such as C1Alpha and C5Home, are managing to contain their business challenges and still define e-commerce that includes direct payment facilities through the Web. C8Estate and C7Panda did not complain about the cost of setting-up and maintenance of e-commerce applications.

It must be noted that the issue of financial constraints is usually cited as a key challenge in e-commerce adoption by SMEs at the entry-level in e-commerce adoption, and also during

subsequent levels of adoption (Aguila-Obra & Padilla-Melendez, 2006). Nonetheless, this factor alone does not account for why SMEs have challenges in adopting e-commerce because even in such circumstances, some SMEs have managed to implement business transactions such as the order and payment services on their website (C5Home and C6Lodge).

6.2.5 Lack of E-commerce Regulation

Most SME managers in the study have noted the lack of e-commerce regulation or policy to guide e-commerce transactions in the Botswana business environment. The formulation of e-commerce regulation in Botswana has been slow and businesses and individuals users do not have adequate policies that can guide business transactions. At present, there are no e-commerce laws that could motivate SMEs to engage in e-commerce, except a bill related to cybercrime that was passed in 2007 (Cole, Chetty, LaRosa, Rietta, Schmitt, & Goodman, 2008).

6.2.6 Access to Payment Facilities

Another issue that was discovered to be crucial for the development of e-commerce is the payment method for e-commerce services. Local mobile users that were earmarked for a mobile e-commerce initiative by C4Teq did not have relevant credit cards. Similarly, previous findings in Tanzania (Mercer, 2005) and other developing countries (Kshetri, 2007) also show that lack of credit cards has hindered development in e-commerce adoption.

6.2.7 Organisational Culture

From the selected sample of SMEs, it can be seen that various organisations exhibited a culture that allowed e-commerce to be driven specific to the manager's or top management's intentions. A culture of 'openness to new innovations' exists in the small firms (C1Alpha C4Teq, C5Home, C6Lodge, and C8Estate), assisting managers to try out ICT innovations that can apply to their firm. With respect to C1Alpha, the aspect of establishing some interaction by e-mail communication is crucial in their e-commerce transactions. This is akin to the relationship-based e-commerce that can be found in the Chinese culture as described by (Martinsons, 2008). In the case of C5Home, managers explained that they made it a point that

at least one of the senior personnel attended industry seminars and workshops to keep abreast with latest issues related to managing the business. These findings corroborate studies by Orlikowski (1993) on the impact of organisational culture in the adoption and use of Case tools.

The organisational culture in C2Beta and C3Gamma is slightly different. In their own ways, management in these firms have driven a form of culture that is more formal to adhere to their customer's requirements for the delivery of products and services. Thus, once a business strategy has been mapped out by senior management, it becomes difficult for lower level managers to implement ICT innovations without seeking approval from senior management. This behaviour is similar to the structural inertia features that have been observed in China (Tan et al., 2007), and in the US (Hong & Zhu, 2006). C7Panda, though a medium firm, appears to adopt a culture that is less formal perhaps due to the managerial structure that is family-oriented. In their case, C7Panda also aims to satisfy their customer and supplier requirement when making e-commerce adoption decisions.

Overall, the behaviour of most SMEs in Botswana environment is known to exhibit some traditional way of doing business, using a combination of the 'word of mouth', the use of fax and telephone (Duncombe & Heeks, 1999) and more recently, the use of mobile phone communication (Iyanda & Ojo, 2008; Mutula & Van Brakel, 2007).

6.2.8 Customer and Supplier Preferences

The Supplier and Customer preferences (also known as business partner preferences) have tremendous impact on e-commerce adoption in the selected SMEs. For example, ICT SMEs (C2Beta, C3Gamma and C4Teq) have relied on their main customer, the government of Botswana (GOB) for most of their business activities. The GOB accounts for more than 80% of business activity in each of these organisations. Thus, the type and scope of e-commerce adoption pursued in these SMEs had to suit the GOB's interests, which according to managers, does not entirely support e-commerce. Amongst the tourism SMEs, the influence of the GOB has been noted in C5Home and C1Alpha but the impact of the business relationship does not necessarily shift the SMEs objectives of pursuing e-commerce activities.

On the other hand, most suppliers to the tourism industry are largely within the local environment of Botswana, and are not dominated by one large player. Thus, they do not exert extreme pressure on SME e-commerce adoption decisions as most business transactions within Botswana are traditionally based with one or a combination of fax, telephone, e-mail, mobile phone or other means of communication. In the case of C7Panda, customer and supplier preferences also dictate decisions for e-commerce direction in the firm. The same can be applied to C8Estate, which depends on the general ICT literacy of individual customers in the local environment.

6.2.9 Security Concerns

The managers of C1Alpha, C2Beta, C3Gamma, C6Lodge, and C8Estate elaborated that security issues are still a major concern with the proliferation of ICT in business and other areas of application. It is due to security concerns that C1Alpha has chosen a socially inclined method of transacting with its clients to allay fears of breach or loss of confidential data. C8Estate also takes security issues seriously by operating a remote site for all their business transactions.

The results are similar to Olatokun and Kebonye's (2010) findings in a previous study aimed at investigating e-commerce adoption challenges faced by SMEs in Botswana. Although, following closely it might be difficult to distill exactly which SMEs were experiencing this challenge as the authors were dealing with a survey of 145 SMEs. As financial institutions continue to deploy credit cards for use in B2B and B2C transactions, it becomes imperative that SMEs are abreast with secure ways of guarding confidential information. The 2007 cybercrime bill (Cole et al, 2008) appears dated and may not directly appeal to all e-commerce concerns. Seymour (2010) noted that despite the high diffusion of mobile phones in African communities, developing countries especially in Africa are not well prepared to resolve security hurdles generated by millions of transactions on the Internet.

6.2.10 The Role of the Local Business Environment

Although a number of institutions exist in Botswana to coordinate SME development such as the Hotel and Tourism Association of Botswana (HATAB), the Local Enterprise Authority,

the Botswana Confederation of Commerce Industry and Manpower (BOCCIM), and others, few SMEs actually take advantage of these institutions to enhance collaboration aimed at business development in their organisations. C1Alpha relies on informal methods of interaction in the business environment such as ‘word of mouth’ and collaborations generated from restaurant patrons. C5Home is an active member of BOCCIM, HATAB and LEA. That said, it also matters that business associations promote the professionalism that is at par with international business standards so that Botswana SMEs do not lag further behind in terms of technological development.

The findings in the tourism sector do align with the concept of formulating strategic-alliances among business partners in an industry with the aim of sharing experiences and resources for the development of e-commerce (MacGregor & Vrazalic, 2005). Industry-wise, the tourism firms may be more active in this area as compared to the ICT firms because of the direct influence from the public firms such as the Botswana Tourism Organisation (BTO) whose mandate is to spearhead tourism activities in the country. Sentsho et al., (2009) noted the lack of coordination amongst several institutions that are meant to assist the development of SMEs in Botswana. In terms of the manufacturing firms, a BOCCIM initiative has assisted manufacturing firms by marketing their products and services overseas through an e-card.

The role of the local business environment, in particular the financial institutions, also contributes to the status of credit cards for local consumers. Credit cards are useful for making online payments. This was a serious drawback to C4Teq’s e-commerce intentions as the banking industry at the time was not ready to provide credit cards for mobile phone users.

6.2.11 The Global Recession and E-commerce Adoption

The global recession was cited by C1Alpha, C4Teq, C2Beta, C7Panda, and C8Estate to inhibit e-commerce in SMEs. C1Alpha was severely affected as its task was to sell art and crafts products to tourists particularly in the US. Generally, other SMEs also experienced a general slump in their business as consumers held back from buying their products and services.

6.3 The Interaction of Factors and the Extent of E-commerce Adoption

The discussion on interaction of factors and how they determine the extent of e-commerce adoption in the SMEs is discussed based on the circumstances in each of the SMEs. There are firms that have benefited highly in e-commerce adoption, such as C5Home and C1Alpha, some have been moderately affected (such as C2Beta, C3Gamma and C7Panda), and others at much lower degrees of benefit (such as C4Teq and C8Estate). It is essential, therefore, to understand what interactions are assisting the SMEs to attain these positions. The discussion is thus based on these degrees of utilisation in the SMEs. For C1Alpha, the great extent of e-commerce adoption has been influenced by factors characterised as high drivers such as the available potential consumers in the US, manager's innovative and entrepreneurial abilities, and the already existing ICT applications such as e-mail, Internet, and the active web that provides payment instructions. The interaction of these internal factors with the external factors in the environment yields a very favourable position for C1Alpha. The social feature of e-commerce transactions has greatly influenced the quality of these transactions, as the parties begin to trust each other and the payment of goods is made.

Similar insight can be drawn from C5Home where managers themselves have noted that their innovation and entrepreneurial skills have paid off due to various interactions and collaboration with other stakeholders in the business fraternity. The results corroborate earlier findings (Thatcher et al., 2006; Gibbs et al., 2003) that an e-commerce strategy that is derived from a consideration of a firm's organisational and external factors in the market will yield best results in e-commerce adoption. The ability to resort to the external environment for ICT support and maintenance (Caldeira & Ward, 2003) as is the case with the tourism firms in this study is a strategic move that other SMEs elsewhere can adopt. Furthermore, in the examples of C5Home and C6Lodge, the use of third-party agents contributes to their ability to effectively market their products and services in the global market. The results of C5Home and C6Lodge corroborate previous studies by Ray & Ray (2006) who demonstrated that SMEs can take advantage of inexpensive third-party web services to derive strategic value in cash generation and higher profits for their firms. Furthermore, the results of the study also

show that the tourism industry, which has received very good support from the government, contributes greatly to the positive image of e-commerce in Botswana.

C2Beta and C3Gamma, the two medium sized ICT firms, can be seen to be impacted moderately in the adoption of e-commerce. This is because of the emphasis on the locally driven business strategy that the firms have adopted which limits utilisation of the website. Thus, there is less emphasis on the website to deliver business objectives in both firms. In the case of C2Beta's business structure, the operations of the shop require customers to physically visit the shop and inspect the goods they intend to purchase. On the other hand, most consumers in the local environment are not comfortable with making electronic payments due to security concerns and a fear of ICT in general. For C2Beta, the ability to 'feel and touch' the products in their shop is still high amongst most consumers; thus the web presence may not appeal so much to their local buyers. Therefore, the customer preference determines the intensity of the interaction for e-commerce adoption at C2Beta as its business characteristic is largely based in the Botswana context.

The interaction of other factors such as the skilled ICT personnel, and the government role has also been less intense because of the influence of the local market, and the impact of the GOB as a major business partner. In the case of C3Gamma, a similar argument to C2Beta may be raised, although C3Gamma did not expand its business from selling business equipment. C3Gamma's origin has been solely in response to the GOB's business intentions; thus it came into the ICT industry already targeting a business relationship with the GOB. Thus, customer preference also determines the direction and intensity of interaction of factors in C3Gamma. It must be noted that the decision of management to guide the business objectives of the firm is a paramount factor that causes firms to choose their market preferences, in favour of, or against e-commerce adoption. Both firms have had active websites for several years, mainly for marketing purposes, whilst undertaking business mainly with local clients. With the government of Botswana as the main business partner, the two firms have decided to maintain this type of strategy, even though they have the necessary resources to improve e-commerce activities.

The case of C7Panda is rather different as the main customer is not in the local environment but in the foreign country. Even in this case, the interaction of factors from within and the external environment moderately determines the e-commerce adoption process. The best interaction of e-commerce adoption factors is one that suits the prevailing conditions of their South African customers and the firm. As Moodley & Morris (2004) noted in a garment manufacturing industry in South Africa, the e-commerce adoption process can not easily be changed to suit a particular individual's interest. Rather, organisations usually align with the norms of other business partners in the industry, and most firms work to maintain this relationship.

The extent of e-commerce adoption at C4Teq and C8Estate is slightly low as it is characterised by the use of e-mail and Internet for communication, and also Internet for searching for business solutions. Both firms have used Skype Internet application to interact with the external business partners especially suppliers. Further interactions with the external environment to fulfill the e-commerce process are limited in these firms. A contributing factor to C4Teq's current position has been on the reliance of local mobile consumers who mostly did not have credit cards at the time. This is similar to many developing country markets that have dragged their e-commerce development due to the lack of credit cards (Mercer, 2005; Kshetri, 2007). C8Estate on the other hand is studying the trends in the country to find best means of incorporating the website in their e-commerce adoption process.

The next section discusses e-commerce development issues.

6.4 E-commerce Development in SMEs

6.4.1 Progression in E-commerce Adoption

The popular assumption in extant literature (Poon & Swatman, 1999; Martin & Matlay, 2001; Daniel et al., 2002; Daniel, 2003; Rao et al., 2003; Russell & Hoag, 2004; Taylor & Murphy, 2004) that e-commerce development in organisations progresses in a steady sequential fashion to advanced stages of maturity is challenged by the experiences of some SMEs in this

study. Whilst sequential development is observed in C1Alpha, C5Home, and C8Estate it is not so for the remaining five SMEs; C2Beta, C3Gamma, C4Teq, C6Lodge, and C7Panda. Thus, it suffices to state that each of the firms began at an opportune time, unique to their context. C1Alpha began with the development of the website and attracted US tourists to buy. They have maintained an interactive website that is complemented by e-mail communication to complete the payment of products. E-mail and Internet are actually employed by the general manager, Neela. C5Home began with a website that is hosted by a third-party agent to make room-reservations and payments. E-mail and Internet applications were introduced much later, and are mainly used by the two managers, and the reception personnel. There is no internal mail system in the firm, however. Meanwhile, C8Estate has developed e-mail and Internet to provide communication channels for the business. The introduction of Skype services is a new concept that has been adopted for communication. Currently, C8Estate is in the process of commissioning a corporate website to advance the e-commerce adoption process.

C2Beta began with a website but have had no intentions to sell their products through this medium due to a locally-based strategy. The website has maintained its marketing feature for many years, without being able to facilitate orders or make payments. Later, e-mail and Internet applications were implemented throughout the firm to improve communication and also to assist in Internet search options. The introduction of mobile devices in recent years has been very useful to link the firm's technical team with other personnel in the field and at the main office.

C3Gamma (like C2Beta) began with a website with a display of marketing features and have no intentions to sell through their website. The development of e-mail and Internet followed soon after, to meet the demands of the business, and to be at par with other local ICT firms in the country. C3Gamma depends on mobile devices as well to link its technical team with the main office.

The development of C7Panda's e-commerce slightly contrasts with C3Gamma and C2Beta. When the firm was small, there was only the managing director and few other personnel that communicated with e-mail and Internet for business purposes. Later, the firm obtained financial assistance that facilitated the implementation of ICT applications such as the corporate website to achieve some marketing objective. As the firm matures to medium-size, e-mail and Internet applications are still being used by administrative and finance staff, and by senior management. Most personnel in the firm undertake production work and thus do not employ e-mail and the Internet for C7Panda's business interests.

C4Teq began with e-mail and Internet applications to establish communication with business partners and its internal staff. They later introduced a website but this was de-activated due to challenges in finding suitable web-hosting services and the unpreparedness of the local financial institutions at the time, amongst others. Mobile phone devices, which were introduced lately, have been dependable to allow interaction amongst various personnel in the firm.

C6Lodge began with a website and later purchased hotel management software but both applications have been inactive during most of the fieldwork. It was confirmed in early January 2012 that the website had become active again. E-mail and Internet were introduced very early in the business but they are being used by the owner manager and the reception personnel to communicate with business partners.

The development of e-commerce in the eight SMEs in this study did not always start with e-mail functionality as suggested in some literature (Rao et al., 2003; Martin & Matlay, 2001). Rather, e-commerce adoption decisions were made based on consideration of a number of factors from within the organisation first (Molla & Licker, 2005a, 2005b) and then consolidated with what the external environment had to offer. The underlying motivations to develop e-commerce for each of the six SMEs are diverse and idiosyncratic, similar to findings by Effah (2011).

Lefebvre et al.,'s (2005) study in Canadian manufacturing SMEs found that trajectories of e-commerce adoption in SMEs are non-reversible, cumulative and path-dependent. Their findings contrast with the results of this study. For example, C4Teq and C6Lodge have had moments of reversible e-commerce activities with active websites in the earlier years of their business. In these cases, the cumulative and path-dependent characteristic may not be visible. However, C6Lodge has since resumed adoption through its website and also has a blog where clients can make room-reservations and complete the payments for products and services.

The cases of C2Beta, C3Gamma, and C7Panda also contrast with Lefebvre et al. These SMEs have portrayed similar marketing strategies regarding their websites and it is not envisaged that these will change in the future. C7Panda has a specialised market for export of its products and thus its e-commerce development is clearly directed to meet the demands of its customers. A possible explanation to these differences could stem from the difference in nature and background that these SMEs operate in (Parker & Castleman, 2009). Lefebvre et al.,'s (2005) study is based in a developed nation of Canada, whose business environment is favourable to SMEs; has various resources as compared to the developing country context of Botswana.

Due to the dynamic changes in ICT in the global world, the application of e-commerce in SMEs may not necessarily follow a determined and consecutive path (Chau, 2003) as is suggested in previous studies (Wilson et al., 2008), but organisations are free to adopt any business model, enabled by a variety of ICT and e-commerce applications (Ngai & Wat, 2002) to achieve a business purpose. It may have been expected that ICT SMEs would have considered e-commerce adoption as a first priority as they are the providers of the ICT infrastructure and related services. The cases of C2Beta, C3Gamma, and C7Panda illustrate what preferences each of the organisations have in terms of the direction of e-commerce. Therefore, they are committed to align their e-commerce activities to service their major customer or business partner.

The development of e-commerce in organisations may also be affected by social and behavioural inclinations in an effort to allay fear of mistrust. This allows the definition of socially-inclined e-commerce, which has been described to incorporate certain qualities of human culture such as trust and openness in e-commerce transactions. The experience of C1Alpha is one such example where management has sought to provide a social discourse to allow some interactivity between prospective buyers and C1Alpha. Martinsons (2008) describes a similar type of e-commerce that prevails in a Chinese environment.

These discussions therefore point to complex scenarios confronting SMEs as they interact and make choices on what business model and e-commerce strategy they need to deploy; and the extent of such deployment. The examples of C1Alpha and C5Home have shown that the first priority to develop e-commerce has been in those areas that give the organisation some competitive advantage (Porter, 2001). C4Teq and C6Lodge reveal typical circumstances affecting many SMEs in developing countries. C4Teq had depended on local mobile phone users to launch their e-commerce strategy but this could not work due to several logistical problems as already mentioned. Despite the differences in the time of introduction of e-mail and Internet applications in the firms, there is a growing appreciation and reliance on these services and their overall contribution to business operations within organisations and the local market. These findings corroborate studies by Mpofu et al., (2011) and Iyanda and Ojo (2008).

The application of the website to enhance e-commerce activities has been incorporated in the tourism firms such as C1Alpha and C5Home, despite some challenges with C6Lodge. C6Lodge has just emerged with a renewed website and marketing strategy that is depended on the local as well as international tourists. The ICT firms, C2Beta, C3Gamma, and C4Teq have employed their websites for marketing and also perhaps for cosmetic purposes. Their concentration on the local market has caused them to pursue a less aggressive strategy for website utilisation that does not allow order placement or payment for goods using the website. The manufacturing firms, C7Panda and C8Estate, have some moderate efforts in their firms.

The social interactions that occur amongst the various stakeholders within and outside the organisations may entail a non-linear path of e-commerce adoption because of several factors related to the technology to be used, the organisational readiness (Molla and Licker, 2005a, 2005b; Mehrtens et al., 2001; Thong, 1999) and the environmental factors. Such considerations may not be visibly seen through the SME website, and other intangible issues of consideration may be inconspicuously hidden within the organisational structures. This makes it difficult to solely rely on the stages of growth models (Wilson et al., 2008; Rao et al., 2003; Martin & Matlay, 2001) that have been applied in previous literature.

6.4.2 Impact of Web 2.0 and Social Networking Media

Although, applications such as Web 2.0 and social networking media (SNM) have already taken centre stage in business in the global world (Bughin & Chui, 2011; Bell & Loane, 2010, Cleverly, 2009), their use in the selected SMEs is still minimal, and just being formulated. C1Alpha connected with Facebook and the manager noted that this could have contributed to business inquiries from places such as Europe and Japan. C5Home and C6Lodge have also commenced marketing their products and services through Facebook. The remaining firms; C2Beta, C3Gamma, C4Teq, C7Panda, and C8Estate, have been quiet in utilising Web 2.0 and social media applications. The extent of deriving more benefit from these technologies through SEM techniques requires more involvement and ICT human resources, and none of these firms has discussed this aspect so far.

6.4.3 Non-Adoption of E-commerce in SMEs

The issue of non-adoption in SMEs can be explained in partial terms in this study. For example, C4Teq and C6Lodge have had to discontinue using their websites due to some organisational and environmental challenges peculiar to each of these organisations.

6.5 The National E-readiness and the Role of Government

Researchers have postulated that the national e-readiness of a country plays a significant role in directing and guiding all stakeholders in e-commerce adoption (Martinsons, 2008). In the context of Botswana, the draft National ICT policy (Maitlamo, 2004) and the final policy document that was published in 2007 (NICT Policy, 2007) have been regarded as stimulants to many local SMEs on how they can participate in the global trade. This also contributed to a number of organisations developing their websites although many have been employed as marketing tools for a very long time (Uzoka et al., 2007). The reduction in telecommunications costs has directly impacted on SMEs ability to develop websites and prepare for ordering and payment transactions. The appreciation of ICT by individual consumers and users is also a key parameter to watch in the development of e-commerce in SMEs. However, the national statistics as stated in the GITR (2012) show that Botswana's networked readiness factors have stagnated to an extent that other African countries, such as Rwanda, have surpassed it in the rankings.

6.5.1 Comparison of the Networked Readiness Indexes

This section compares the networked readiness index of Botswana with the UK, and Botswana with Rwanda, and discusses the results based on the findings from the study.

6.5.1.1 Botswana and the UK

The Global Information Technology Report for 2012 ranks the UK as the 10th country in the world in networked readiness, out of 142 countries that were analysed. This is far ahead of Botswana that has been ranked 89th in the same survey. Botswana resides in a region of Sub-Saharan Africa that has been described to have poor ICT infrastructure, low ICT skill base and weak macro-economic policies (GITR, 2012). The ranking alone shows a significant contrast between the two countries which indicates to a great extent, the general business environment that SMEs in these countries are subjected to. Furthermore, the average scores for the two countries also show significant differences; the UK (5.5), and Botswana, (3.6).

6.5.1.2 Botswana and Rwanda

Another comparison has been made between Botswana and Rwanda, a developing country in Sub-Saharan Africa that has similar social-economic characteristics to Botswana. Rwanda's networked readiness index is 82, surpassing Botswana, at 89 out of 142 countries. With reference to Table 6.6.1, the environmental (33) and usage readiness (87) for Rwanda surpass those for Botswana whose environmental subindex and usage subindex are 52 and 96, respectively. Botswana's statistics are higher than Rwanda only in the readiness category which is commendable but does not assist much in the overall impact. These conditions have finally affected the impact subindex which is lower in Botswana (98) as compared to Rwanda (56). In terms of the score rating, Botswana's score (3.6) is slightly higher than Rwanda (3.7). However, the score does not reveal much difference between the two countries. Table 6.6.1 (on the next page) shows the pillars of development that have been used to arrive at the scores and the rankings.

Table 6.6.1 Comparison of the Networked Readiness Index

(Source: GITR, 2012)

Pillars ranked in 142 countries	UK Rank	UK Score (1-7)	Botswana Rank	Botswana Score (1-7)	Rwanda Rank	Rwanda Score (1-7)
	10	5.5	89	3.6	82	3.7
A. Environment subindex	11	5.3	52	4.1	33	4.7
1st pillar: Political and regulatory environment	10	5.3	40	4.3	19	5
2nd pillar: Business and innovation environment	20	5.1	79	3.9	57	4.2
B. Readiness subindex	13	6.0	98	4.0	120	3.2
3rd pillar: Infrastructure and digital content	11	6.2	93	3.3	113	2.9
4th pillar: Affordability	27	5.9	101	4.0	119	3.0
5th pillar: Skills	21	5.8	85	4.8	118	3.6
C. Usage subindex	11	5.4	96	3.2	87	3.3
6th pillar: Individual usage	8	5.9	102	2.4	133	1.7
7th pillar: Business usage	16	5.1	87	3.4	66	3.5
8th pillar: Government usage	7	5.3	72	3.7	31	4.6
D. Impact subindex	11	5.3	98	3.1	56	3.7
9th pillar: Economic impacts	14	5.2	113	2.7	50	3.5
10th pillar: Social impacts	9	5.5	91	3.4	60	3.8

Table 6.6.1 shows that Botswana's environment subindex which includes political and regulatory environment, is still a challenge. The results are similar to the study's findings where most SME managers have noted the lack of e-commerce policy in the country. The usage ratings have not improved although the country can boast of having one of the best telecommunications infrastructures in Africa (NICT Policy, 2007). The data in Table 6.6.1 aligns well with both the draft National ICT policy and the published document of 2007 (NICT Policy, 2007). However, the National ICT policy is now outdated, and unable to facilitate e-commerce development for many SMEs in the country.

6.5.2 The Role of Government in SME E-commerce Adoption

Previous studies have usually depicted the role of government in policy formulation and regulation (Thatcher et al., 2006; Martinsons, 2008). The Botswana Telecommunications Authority (BTA), a subsidiary of the GOB, undertakes all regulation for communication, including e-commerce in the country. Furthermore, as a single-sector regulator of telecommunications activities in the country, BTA has exclusive rights to determine what businesses may operate in the country. A state-owned corporation that receives all telecommunications responsibilities is the BTC that acts on behalf of the GOB and also acts as a key player in the industry. This relationship has been perceived as a source of conflict in the ICT industry, and some business analysts contend that the GOB usually monopolises its interest through BTC, and therefore does not properly mediate the interests of private firms, particularly SMEs.

In addition, the case of ICT SMEs in this study has depicted a dual role that the government plays in the local business environment of Botswana; a business partner or customer on one hand and a policy regulator on the other. It does appear that the GOB obtains better benefits from this relationship than the ICT firms. Negotiating with government as a customer, and at the same time a provider of ICT and telecommunications infrastructure, does not usually breed positive growth for some SMEs such as C4Teq. As long as the GOB is a key player in most SME business activities, e-commerce adoption decisions in the present and foreseeable future will highly depend on it, and the GOB will need to improve its role in this area. The results contrast with findings from Scupola (2009) in a comparative study between Danish

and Australian SMEs. Scupola found that the government role was not significant amongst Danish SMEs whereas it was indirectly significant in Australian companies. It must be mentioned that Scupola's (2009) study and indeed other prior studies (Scupola, 2005; 2003) define the scope of government role in SMEs in terms of knowledge deployment, subsidy facilitator and mobiliser. This is particularly so in developed economies where the private sector is well-diversified with various industries (Martinsons, 2008), and government is mainly concerned with issues of regulation and policy guidance. In the case of Botswana, the government also acts as a business partner because of the small private sector. This is a sensitive and challenging position to take for the GOB because its behaviour and actions may not favour other business players in the local environment. Other firms such as SMEs may feel marginalised as the government fails to moderate its dual role in the economy.

An e-government portal exists as a starting point to encourage further collaboration between the GOB and its clients, but so far the site exists merely as a cataloguing feature that provides information on various services (Layne & Lee, 2001) that the GOB provides. Visitors to the government website are not able to interact and obtain a service without having to make a physical follow-up to the government department.

Overall, e-commerce regulation in Botswana as depicted through the national ICT policy (NICT Policy, 2007) is inadequate and has inconvenienced some SMEs such as C4Teq. Generally, SMEs that are targeting the local market for their business may not be adequately supported by the national ICT policy.

6.6 Use of the Conceptual Framework in this Study

The use of the conceptual framework in this study as described in earlier chapters has been used to unearth factors that affect e-commerce adoption in the SMEs. The conceptual framework was theoretically derived from extant e-commerce adoption literature and other IS related areas. In particular, the framework was presented with elements of focus that aligned with answering the research questions. The elements of the framework, summarised as; the nature and characteristic of the business environment, the use of ICT and web-based

applications, the managerial characteristics and perception of e-commerce, the factors affecting e-commerce adoption, how the factors interact to determine the extent of e-commerce adoption, and the role of the local business environment were applied in the analysis of the data collected from interviews to unearth factors that affect e-commerce adoption in an organisation. Thus, the framework allowed an iterative process of analysis to take place among the elements in order to derive meaning from various pieces of information. Furthermore, a loose and flexible approach was practiced to allow comparison of information obtained from the elements. Thus the elements or broad categories are mutually dependent on each other to allow a full synthesis of the factors from the whole spectrum of the framework. In this manner, the research framework has been very useful in answering the research questions of this study.

6.7 Summary and Conclusion

This chapter discussed the findings of the research. This was done by integrating the findings from each of the SMEs through cross-case analysis and the literature review. The discussion shows that the SME e-commerce environments are uniquely defined and different factors motivate and de-motivate e-commerce adoption in various ways. Several factors have been discussed and their impact on individual SMEs in the sample. These are: managerial characteristics and perception of e-commerce adoption, skilled ICT personnel, availability and slow speed of the Internet, the cost of setting-up and maintaining Internet applications, access to payment facilities, organisational culture, supplier and customer preferences, security concerns, local business environment, government role as customer, and the global economic recession. In summary, the study found that although the factors have been widely known to affect e-commerce adoption in SMEs, their manner of impact, interaction, and presentation in the selected SMEs shows similarities but differences as well. Further, as management is in a continuous process of analysing and evaluating what ICT is available in the market, the factors that impact on the organisation may not remain static but rather will be modified or altered depending on the scope and magnitude of e-commerce adoption in the firm. Three tourism SMEs (C1Alpha, C5Home, and C6Lodge) have had some degree of integration and transaction on their website, with the third one activating their website at the

close of this study. The interactivity of the websites in the study was minimal mostly in C2Beta, C3Gamma, and C7Panda, and the reasons for this though contextually different were somewhat similar. C4Teq and C8Estate define e-commerce based on e-mail and Internet application. The chapter then discussed the interaction of the factors and their influence on the extent of e-commerce adoption, showing how some factors act as barriers and others as drivers depending on the prevailing circumstances and what position managers have taken. The discussion also highlighted issues in e-commerce development such as the issue of progression in adoption, and web 2.0 and social networking applications. This was followed by a discussion on the national e-readiness indexes of Botswana market in comparison with the UK, and Rwanda. The role of the GOB, the inadequacy of the National ICT policy, followed by their impact on SME e-commerce adoption are discussed before the summary of the chapter.

The next is Chapter 7, which provides the conclusion of the study.

Chapter 7 Conclusions

7.0 Introduction

This is the final chapter in this thesis. It begins by providing a summary of the major research findings. The next section highlights the research contribution of this work, followed by a discussion on ethical considerations that relate to the research process in this study. An evaluation of the study using interpretive research principles is presented, followed by a discussion on the implications of the research findings. The next section provides strategies for improving e-commerce adoption in the SMEs. This is followed by a section on e-commerce continuity, and finally, the final conclusion, which is drawn to close the thesis.

7.1 Major Research Findings

This section presents the major research findings gathered from the various chapters and the fieldwork in the selected SMEs. The main findings are discussed under the outline of each of the research questions in the following three sub-sections:

7.1.1 Research Question 1

What is the Nature and Characteristic of the Botswana SME E-commerce Environment?

The Botswana's SME e-commerce environment is explained based on the context of the following SMEs; C1Alpha, C2Beta, C3Gamma, C4Teq, C5Home, C6Lodge, C7Panda, C8Estate, and C9Autoco. Each SME's e-commerce environment is summarised in the following sub-sections:

7.1.1.1 C5Home

C5Home is a small tourism firm that uses basic ICT applications for managing accounting data. Its business environment caters for local and international guests in a rural location of Botswana. E-mail is used for internal and external communication. The Internet provides a framework for e-mail communication, and is occasionally used for searching for business

solutions. The firm's website is hosted by third-party agents in other Southern African countries. All order and payment transactions generated through third-party websites are completed by the third-party agents. Other international clients, especially individual clients, directly perform online orders and payment transactions through C5Home's website by using international credit cards. Local business clients use conventional methods of payment such as paying cash, and electronic funds transfer, through a banking firm. Thus, B2C, B2B, and mobile e-commerce describe C5Home's e-commerce environment, and e-commerce is described as being critical for the firm.

7.1.1.2 C1Alpha

C1Alpha is a small tourism firm that sells art and craft products to local and international tourists, and also promotes Botswana culture through music shows and other traditional activities. Communication is a critical ingredient in the business, thus, e-mail is used for internal and external communication. The Internet provides a framework for e-mail communication, and little time is devoted to searching for business solutions. The firm obtains assistance for support and maintenance of ICT applications and the hosting of its website from a local ICT firm. C1Alpha's website provides a marketing framework for its products, and clients can place orders through it. Some communication needs to take place between the firm's manager and the prospective client, before payment can be made. Payment is made through international credit cards, and other traditional banking methods. E-commerce is mainly characterised as a socially-inclined process of interaction between the organisation and its online consumers from the US. Thus, it has a more communicative approach to e-commerce to buy time for trust between the consumer and the firm. A socially-inclined B2C, B2B, and mobile commerce describes C1Alpha's e-commerce environment, e-commerce can be described as being critical for the firm. A social networking aspect through Facebook is just beginning to emerge in the firm.

7.1.1.3 C6Lodge

C6Lodge is a small three-star hotel that provides hospitality services to local and international guests in Botswana. It uses e-mail and the Internet for communication with its clients. Further, a website and a blog that are being hosted by third-party agents assist in recruiting

online tourists for the hotel, providing both online order and cash payment services. The firm depends on external ICT skill for computer support and website maintenance. The firm's website which had been inactive for most part of the research was re-activated at the close of fieldwork. Thus, the firm presents early B2C, B2B, and mobile e-commerce, which may also be described as moving beyond a business necessity to being critical in the firm.

7.1.1.4 C2Beta

C2Beta is a medium-sized ICT product and service provider that provides business to the GOB and other private companies in Botswana. It has technical and managerial ICT skills to initiate and advance e-commerce adoption. E-commerce adoption at C2Beta is defined using e-mail and Internet for communication purposes. The application of Internet includes activities such as researching business solutions, e-mail, mobile phone communication, and social network marketing. The firm's website, therefore, adds an Internet presence for the firm and assists in marketing its products and services. E-commerce is defined to meet the local business needs with the GOB, and also for communication to its technicians who are out in the field. Some business transactions that are undertaken within the firm to link up with other departments can be observed, which can be known as intrabusiness. Furthermore, the firm transacts with its employees as a type of B2E e-commerce. Therefore, C2Beta's e-commerce is characterised as a business necessity through B2E, B2C, B2B, mobile and intrabusiness e-commerce.

7.1.1.5 C3Gamma

C3Gamma is a medium-sized ICT products and services provider which has technical and managerial ICT skills to initiate and advance the e-commerce adoption process. The GOB is a major business partner and other local firms constitute a small portion of its business. Internet is used for searching business solutions and e-mail is widely used for communication purposes. Furthermore, the firm's website, which is used for marketing purposes, adds some dimension in e-commerce adoption. Some communication and exchange of business information is undertaken within the firm to link up the main office with other units of the firm, known as intrabusiness. Business activity that is undertaken between the firm and its ICT technicians in the field, known as B2E, can also be observed. Therefore, C3Gamma's e-

commerce is characterised as a business necessity through B2E, B2C, B2B, mobile and Intra-business e-commerce.

7.1.1.6 C7Panda

C7Panda is a medium manufacturing firm that manufactures foam products, mainly for the South African market. E-commerce adoption can be described using e-mail and Internet, mainly for communication purposes and performing Internet searches. The corporate website is mainly used for marketing the firm. The firm presents B2C, B2B, and mobile e-commerce, which may be described as a business necessity that requires managerial attention.

7.1.1.7 C4Teq

C4Teq is a small-sized ICT products and services provider that provides business mainly to the GOB and other local private firms. It has basic technical and managerial ICT skills to meet the local business needs. E-commerce adoption can be described using e-mail and Internet, mainly for communication purposes and performing Internet searches. A failed or discontinued web application describes previous attempts to improve e-commerce adoption in the firm. Some communication takes place between the firm and its technicians in the field. Therefore, C4Teq presents B2E, B2C, B2B, mobile and intrabusiness e-commerce. The general description of e-commerce is a business necessity that requires managerial attention.

7.1.1.8 C8Estate

C8Estate is a small manufacturing firm that manufactures housing products such as bricks for consumption in the local market. The use of e-mail and Internet for communication purposes and Internet applications such as Skype generally describe the e-commerce environment in the firm. There is no corporate website although the managing director confirmed that it would be commissioned soon. The enactment of e-commerce laws in the local environment can motivate most of its individual consumers participate in e-commerce adoption. Therefore, the type of e-commerce being pursued in the firm can be described as B2C, B2B, and mobile commerce. The general description is similar to C4Teq, which is a business necessity that requires managerial attention.

7.1.1.9 C9Autoco

C9Autoco is a small manufacturing firm that manufactures vehicle products such as canopies for trucks and vans. Its e-commerce is defined using e-mail and Internet for communication purposes with business partners. The use of mobile commerce is popular to communicate with staff and other business partners. Some business research using the Internet is performed only by the general manager. Therefore, the type of e-commerce being pursued in the firm can be described as B2C, B2B, and mobile commerce.

7.1.2 Research Question 2

What Factors Affect E-commerce Adoption in Botswana SMEs?

The second research question was stated as above. Results show that contextual factors peculiar to each organisation provide better explanations of how SMEs progress in e-commerce adoption. The progression in e-commerce adoption bears some characteristics of each of the SMEs and so affects the factors thereof. The following summarises factors for each organisation:

C1Alpha:

Factors such as; managerial innovation, availability of e-mail, the Internet, the corporate website, online consumers from US, and the ICT skill from the external environment, have contributed positively to the extent of e-commerce adoption in the firm. Key barriers include the slow Internet speed, poor telecommunications and lack of industry support.

C2Beta:

The factors such as customer preference, the use of e-mail, Internet, the corporate website, and ICT skill and expertise, moderately drive the e-commerce adoption process. Barriers include; the slow speed of the Internet, lack of access to clients' website, lack of online order and payment functionalities, lack of e-commerce policy, and the lack of support from the local industry firms.

C3Gamma:

Like C2Beta, organisational, technological, and environmental factors all moderately affect e-commerce adoption at C3Gamma. Factors that moderately drive e-commerce adoption are; customer preference, e-mail, the Internet, the corporate website, and ICT skill and expertise. Barriers are; the slow speed of the Internet, customer/supplier preference for traditional methods of business, lack of e-commerce policy, lack of online order and payment functionalities, and lack of support from the local industry firms.

C4Teq:

Factors such as lack of e-commerce policy, lack of website, and lack of credit cards acted as barriers to e-commerce adoption at C4Teq. Organisational factors such as the use of e-mail and Internet have affected e-commerce adoption moderately.

C5Home:

Organisational factors such as managerial innovativeness, use of e-mail, the Internet and third-party websites have contributed to the high usage of e-commerce adoption in the firm. The slow speed of the Internet and the breakdown in communication are amongst the barriers to e-commerce adoption at C5Home.

C6Lodge:

Organisational factors, such as managerial innovativeness, use of e-mail, the Internet and third-party websites have contributed to the high usage of e-commerce adoption in the firm. Key barriers include the lack of ICT skill and lack of industry support.

C7Panda:

Organisational factors such as the use of e-mail and Internet have affected e-commerce adoption moderately in the firm. The lack of online order and payment functionalities on the website, and lack of e-commerce policy have acted as barriers to e-commerce adoption.

C8Estate:

Organisational factors such as the use of e-mail and Internet have affected e-commerce adoption moderately whereas the lack of e-commerce policy, low e-mail and Internet use amongst its local customers, and the lack of a corporate website, act as barriers to improving e-commerce adoption at C8Estate.

C9Autoco:

Organisational factors related to the manager have contributed to the slightly moderate level of e-commerce in the firm. Also, the lack of managerial commitment, the corporate website, and organisational enthusiasm act as barriers to e-commerce adoption at C9Autoco.

7.1.3 Research Question 3**How Do the Factors Interact to Determine the Extent of E-commerce Adoption?**

The third research question was stated as above. The interaction of the factors to determine the extent of e-commerce adoption has been discussed based on the performance of each SME in relation to the degree or strength of utilisation of e-mail, Internet and website applications. Firms whose internal and external factors interact at a highest degree with respect to e-commerce applications reap greater benefits and satisfaction from e-commerce. The firms; C1Alpha, C5Home have obtained greater satisfaction due to the high interaction of the enabling factors from within and outside their firms in the utilisation of e-mail, Internet and the corporate website.

C6Lodge also follows suit with respect to the high interaction of factors because of the renewed consideration of external factors such as new markets and collaboration in e-commerce adoption. The resumption in website use in the firm still needs to be monitored over a long period of time to establish how the firm fares in this new development and also assess its overall contribution to e-commerce adoption.

With regard to C2Beta and C3Gamma, the interaction of factors affecting e-commerce adoption is not very intense due to the lack of online order and payment facilities from their respective websites. Indeed, the use of e-mail and Internet is very high in both firms but the application of their websites is only for marketing purposes. In the case of C7Panda, e-mail and the Internet are used moderately and the website is mainly used for marketing the firm generally. Thus, C7Panda experiences moderate interaction of factors.

The interaction of factors is moderate at C4Teq and C8Estate due to the emphasis on the use of e-mail and Internet. There is moderate interaction with the external environment in these firms. C9Autoco has the lowest interaction of factors in the use of e-mail and Internet.

7.2 Research Contribution

7.2.1 Theoretical Contribution

This study makes a theoretical contribution by developing a conceptual framework for analysing factors that affect e-commerce adoption in SMEs. Furthermore, the research also employs existing literature to present patterns of e-commerce adoption in nine SMEs. Extant theory of e-commerce adoption was used to develop six broad categories (or elements) from the literature, which aimed to provide answers to the research questions. Consequently, other theoretical contributions can be described using the elements of the framework in a table as follows:

Table 7.2: Theoretical Contribution

Element of the Framework	Research Contribution
The nature and characteristic of ICT and e-commerce in the SME	The study reveals patterns of e-commerce adoption in nine SMEs in the context of Botswana. These were earlier described in section 7.1.1.
The use of ICT and web-based applications	In combination with the first element this research contributes a new conceptualisation of e-commerce adoption by unearthing a socially-inclined e-commerce feature in SMEs as is the case with C1Alpha that presents B2C, B2B, and mobile commerce. It aligns with Avgerou (2000) who argued that the deployment of IS in developing countries must accommodate alternative rationalities that depend on the context in which technology is used, the nature of that technology, and most importantly, how the managers of organisations intend to use such technologies in their firm.
Managerial characteristics and perception of e-commerce adoption	C1Alpha's e-commerce environment also illustrates how certain characteristics of human culture such as trust and openness are incorporated in e-commerce transactions. The experience of managers in C5Home and C1Alpha assist in advancing the use of e-commerce in their organisations. The study also highlights the knowledge that e-commerce development in organisations is dynamic and will be modelled according to management's decision and the ICT development currently obtaining in the local and global business environment.
Factors that affect e-commerce adoption in SMEs	Based on the factors revealed in section 7.1.2, this study contributes in the knowledge of contextual factors in the nine SMEs in Botswana. The factors themselves are not entirely new but are presented in different patterns based on the nature and characteristics of the nine SMEs. Furthermore, the research accomplishes this in Chapter 2 by reviewing extant literature on factors that affect e-commerce adoption in SMEs. This study adds to the knowledge that e-commerce adoption factors in SMEs are in constant motion, even as the phenomenon itself is summarised in a statement that; 'e-commerce is a moving train' by Karakaya & Shea (2008).
How the factors interact to determine the extent of e-commerce adoption	This element allowed for the interaction of factors within and outside the firm. Also, showing that the elements of the framework co-exist with the interaction of other elements to arrive at a suitable position for the firm.
The role of the local business environment	The study places emphasis on the role of the local business environment to foster developments in e-commerce adoption for SMEs. There is an expanded view of the scope of e-commerce adoption issues and the anchoring of the complexities that impact its adoption in the context of the local environment.

7.2.2 Methodological Contribution

Previous studies have tended to use snap-shot survey methodologies (Parker and Castleman, 2007) that lack depth and are distant from the research context (Molony, 2006) and the

research participants. This research contrasts this approach by providing a different methodological approach. An interpretive case study approach was followed as it was best suited to respond to the aims and research questions of the study. Thus, this research provides a methodological contribution by allowing a much longer engagement (Nandhakumar & Jones, 1997) with the research participants to investigate particular issues in the selected SMEs. An exception is however noted for the SMEs in the manufacturing sector where relatively shorter periods of engagement were allowed based on the conditions of their managers. C7Panda and C8Estate, in separate accounts judged that no more interviews were necessary. The case of C9Autoco may not provide a methodological contribution as the engagement with the firm was below the acceptable level and could not provide rich insights of e-commerce adoption issues in the firm. The reasons for the exception have been explained in sections 4.2.5 and 7.3.

Another aspect of the methodological contribution relates to how e-commerce adoption occurs in an organisation, which was assumed to progress naturally as a process. As much as possible, the study aimed for more and repeated engagement and interaction with the research participants to allow an easy flow of information and understanding. This was possible with SMEs such as C1Alpha, C2Beta, C3Gamma, C4Teq, C5Panda, C6Lodge, C7Panda and C8Estate.

The next section provides a critique of the research contribution.

7.2.3 A Critique to the Research Contribution

The development of the conceptual framework using six broad categories as defined in the research question may raise some questions to readers who may argue that the study aligns to the positivist tradition. However, the response to this argument is that the six broad categories theories have not been employed in a rigid manner as it is done in the positivist tradition. Rather, the elements have been used in a loose and flexible manner to assist in the analysis and also to allow issues to be revealed in each of the SMEs.

The understanding of e-commerce adoption in the selected SMEs in this study employed an interpretive case study approach, using data collection techniques such as face-to-face

interviews, telephone interviews, document analysis, website content analysis and observations which are highly subjective (Chua, 1986). This may not be appreciated in the positivist tradition as they may claim that it can introduce some bias in understanding IS issues.

7.3 Ethical Considerations Revisited

As an interpretive case study, ethical considerations were made regarding the participation of the researcher, and the human participants in the researched organisations. This study has undergone processes of ethical approval by submitting to the requirements of the University of Salford Research Ethics (USRE) panel. The USRE panel approved two documents that were prepared by the researcher to be used in the data collection process. The first document consisted of information about the research and its purpose, the research phenomenon, and the roles and responsibilities of the researcher and the participants in the organisation, and a sample of questions to be asked during interview sessions. The second document was an informed consent form, which consisted of two parts: 1) the first part was an informed consent form that offered each participant the choice to participate, refuse or withdraw from the study at will, and 2) a data protection agreement form which stated that information gathered in the research process would not be divulged to a third party in whatever form and that information so gathered in the study would be in the custody of the researcher for ten years and thereafter, to be disposed of. The contents of these documents were discussed with research participants before the interview process begun. The research was therefore undertaken by concealing names of participants and the participating firms, and other means that would prevent a third party from guessing the correct source of information. Permission was also obtained to record interview proceedings and that researched organisations were free to consent or not. Future publications from this research would also follow the same procedures as outlined in the ethical process above. The second ethical approval was from the Government of Botswana for the issuance of a research permit to undertake field work in Botswana. The Appendix section (A and C) provides sample forms from these ethical considerations and information about all materials that were produced in this study.

Three sources of ethical dilemma in IS interpretive studies described by Walsham (2006) were discussed in section 4.4.3 as follows: confidentiality and anonymity, working within an organisation, and reporting in the literature. The researcher followed the suggestions as proposed by Walsham but some ethical challenges still surfaced. For example, the nature of interpretive studies required that pictures such as images and other items that would provide evidence be captured wherever possible. Some pictures were collected and company websites were altered to disguise the true identity of the organisation but these were later removed from the report to safeguard the position of the organisation and also to comply with the signed ethical agreement. The names of the organisations and the interviewees have been changed for the sake of reporting and further publication of the work. Further, owing to the small nature of the Botswana economy, putting website information in this report would have led some third-party persons to easily identify the organisations that have been investigated. However, one organisation had actually agreed to have their images displayed in the report as a way of marketing their products and services, but the signed agreement constrained this undertaking.

Even though the researcher is the sole proposer of the study, the actual undertaking of the research process may be constrained by other cultural factors, the participants' perception of research in general and the suitability of the chosen period of engagement with the prevailing circumstances in the organisation. For example, one of the managers at C2Beta could not entirely devote time for the interviews because he was a key figure in undertaking business relations with the GOB. Thus, the face-to-face interviews were usually interfered with other callers and the need to follow C2Beta's technicians in the client's workplace. As a result, the intended digital recording process was not fruitful and the researcher depended on taking notes on how ICT were used in the organisation.

During the process of interviews, some managers were unfamiliar with recording of interviews and so had refused to commit themselves to this process. Some managers were also apprehensive of being digitally-recorded as they feared reprisals from senior managers of the firm. Later, during follow-up interviews and possibly after confirming the importance of

the study and trust in the researcher, they softened their stance and agreed to have interview recordings. However, previous events could not be re-played in the natural mode and the researcher was dependent on scripts of notes to gather information about the firm. Thus, digital recording may be useful to some researchers but others may find it very cumbersome as it distracts the attention of the interviewer and the interviewee. The researcher found digital-recording useful for making follow-up analysis, and comparing the contents of the interview process with the notes that the researcher had written during the interviewing process.

It must be pointed out here that some SME managers in the local environment of Botswana pay little attention to the details of research methodology when they are first presented to them even though they would show keen interest in the overall objectives of the study. One reason could be that they are busy with other tasks in their organisation, whilst others tend to assume that the popular survey method of investigation which does not require close engagement with the research participants was the one being pursued.

One last dilemma that the researcher encountered regards reporting about third-party organisations that have been popularly mentioned as key stakeholders in e-commerce adoption with a participating organisation. Since ethical agreements are made with the participating organisations and not necessarily any third-party organisation, it became a concern as to how to handle revelations of business dealing with such organisations. For a small economy like Botswana, there is no business that is not touched directly or indirectly by the position of the government, either as a customer or a policy regulator. One may argue for the protection of such big players in the economy but it also becomes futile because such entities have been discussed world-wide through United Nations documents and other global economic publications (GITR, 2012; IMF, 2007). Thus, the researcher would like to depend on the anonymity of the participating SMEs in order to protect the interests of key stakeholders.

7.4 Research Implications

7.4.1 Implications for Research

The study took a departure from following popular positivist approaches that have largely depended on collective and remote methods of investigating e-commerce adoption factors such as exploratory surveys. The approach aimed at understanding historical developments of e-commerce in the firm as a process that will be impacted differently by unique circumstances within and outside the SME environment. Furthermore, the unearthing of idiosyncratic circumstances in the interpretive paradigm allowed the subjective construction of e-commerce adoption realities through the interaction of the researcher and the SME managers. This approach therefore comes closer to understanding SME e-commerce adoption issues in developing country contexts such as in Botswana, and possibly being more enabled to find solutions to the challenges that SMEs face.

Drawing from Walsham (2006) who noted that theory in interpretive research may either be applied in a lighter or stronger way, this study applied theory in a lighter and flexible manner to identify resources in the SME e-commerce adoption process. The application of theory was done in a lighter manner in the development of the conceptual framework in section 3.6. Further research may thus be applied in other contexts using this approach to gain more insight into the factors affecting e-commerce adoption process in SMEs.

There have been significant developments in e-commerce adoption with the application of Web 2.0 technologies, cloud computing, and many other new ICTs. Further research focus could target SMEs and their application of Web 2.0 technologies such as social networking media, and other new ICTs. Bell & Loane (2010) noted that relevant academic research that can inform practice is still behind technological developments in both developed and developing contexts, and as such, more research into how SMEs are affected is still warranted, by industry, country and regional groupings.

This study applies a social-technical approach to understanding the 'inside' issues of an organisation from an investigative background. The methodological process can be very long, costly (Molony, 2006), and requires patience from the researcher and the organisational participants to be able to follow through the stories of e-commerce adoption and make meaning of what each scenario says. However, there is reward in the quality and depth of investigation that adds some dimension to the pool of academic literature on SMEs. Research that looks at these dimensions has been scanty in SME literature (Riemenschneider et al., 2003) and this approach contributes in applying the study to a developing country context of Botswana.

The progression of e-commerce development in the selected SMEs has challenged studies that insist on a sequential and staged-growth of e-commerce. The study has found that SME growth and development may not be easily charted on a sequential path from inception to the current state in the adoption as proposed by Roger's DIT (1995; 2003). Rather each SME's e-commerce development was guided by various factors, driven by internal and external circumstances in the firm. These findings open up research dimensions into further validating these aspects in other contexts.

It would be interesting to study the whole spectrum of e-business in organisations, investigating how managers make decisions and take choices on what ICT to adopt or not. Understanding contextual factors in e-business would have to incorporate all stakeholders in the value chain (Porter, 2001). Researchers who dislike models that strip social interactions in e-commerce adoption have an opportunity to apply interpretive approaches to unearth new realities of SME e-commerce adoption in other developing country contexts. This is because the understanding of e-commerce adoption factors in the interpretive approach necessitates a period of interaction through social constructions of culture, language and the shared meanings, thereby enabling the researcher and research subjects a chance to make sense of the process of e-commerce adoption in a natural manner.

The understanding of e-commerce adoption factors in SMEs has usually been investigated from a distant perspective, from the outside of the firm, disregarding the socio-technical situations that surround SMEs decision-making process. This study adds to the breadth and depth of understanding social-technical issues in SME e-commerce environment that encourages social interactions between the researcher and the research participants. Future studies could focus on other contexts in developing and developed countries to reveal social-technical aspects in e-commerce adoption in SMEs.

7.4.2 Implications for Practice

The findings of this study offer several implications for practice to various stakeholders in SME e-commerce adoption decisions. For SMEs in Botswana and other similar contexts, the cases in this study offer practical information and rich insights on how they can learn from the experiences of e-commerce development. Indeed, SME managers in developing country contexts can learn from the different scenarios of e-commerce appreciation, and compare their e-commerce efforts with these and make strategies for improving their own conditions in their organisations. SMEs are also encouraged to participate in industry forums, seminars and other similar gatherings to learn and interact, with an aim of improving their e-commerce position in their firm.

For government policy regulators, the findings in this study reiterate other calls to provide relevant and appropriate e-commerce legislation for SMEs in developing countries which are either currently non-existent or out-dated (Meso et al., 2005). With regard to Botswana, this study is a motivator to policy makers to improve e-commerce legislation for SMEs. The role of the GOB in boosting e-commerce development has been found to be weak, based on the findings of this study. The provision of an enabling environment by enacting e-commerce laws that are appropriate to the SME business needs in the local environment has been very slow as can be seen from the dated National ICT policy documents (Maitlamo, 2004; NICT Policy, 2007).

Furthermore, governments must be able to facilitate the formation of networks and clusters (Piscitello & Sgobbi, 2004), to improve and widen the SMEs knowledge-base. Participation

in international conferences and workshops needs to be encouraged from the government's perspective so that SMEs can draw seriousness on the matter and embark on competitive e-commerce activities that meet international standards.

This study has noted the need for ICT skill and expertise in selected SMEs especially in the tourism and manufacturing sectors that may need to employ advanced ICT applications for advanced e-commerce processes. However, the three ICT SMEs in this study have had no complaints in this area. This situation may need to be reviewed at the national level which reflects acute shortage of ICT skill at the national level as well (GITR, 2012; Mutula & van Brakel, 2007; NICT Policy, 2007). Relevant policies are required to enable training of ICT and e-commerce personnel that can take up the challenge of re-skilling in various areas of ICT development.

The new wave of ICT developments such as Web 2.0, open innovation and cloud computing needs qualified and trained professionals to respond to the local business environment in Botswana. This has a spill-over effect in the characteristic and profile of the ICT sector as well. The ICT sector needs to take up vigorous approaches that can provide software development services other than the current trend of providing mainly technical and wireless communication services. There is a need for local vendors and ICT software developers to offer services that can improve the business profile of local SMEs position in line with international ICT standards.

The above discussions also point to appropriate action by training institutions at all levels of ICT education in Botswana. These organisations need to improve their curricula to provide training materials that are competitive and up to the level of international standards.

7.4.3 Implications for Further Research

This study touches on several areas that may need further research. Some of the issues worth researching on are discussed as follows:

- Further research can expand on these findings and extend their application to developed and developing country contexts. There is need for more interpretive case studies in

developed and rich economies, and other regions of the world to further understand and characterise the development of e-commerce in SMEs. Furthermore, the factors that affect e-commerce adoption in the described categories have been found to corroborate previous studies in developing countries by Molla & Licker (2005a; 2005b), although the combination of factors and the degree of interactions may slightly differ in each case.

- The results of this study have found that the GOB plays a crucial role in the development of e-commerce in the SMEs, either directly or indirectly. However, there is need for further investigation into the role of government in the development of e-commerce in SMEs in other regions of the world, especially those with similar characteristics to Botswana. Such studies could offer insight to government policy makers on the best ways of providing regulation and guidance and at the same time act as business partners to private firms in their context.
- Although this study has analysed the cases in three industries, the study of industry characteristics in e-commerce adoption can be taken further to investigate the role of governments in each industry and how they are motivated to assist SMEs in their contexts. Further studies may also look into industry impacts and how SMEs are affected in other regions of the world, including developing countries.
- In terms of theoretical application, further research is required in other contexts particularly in developing countries to understand how the SME e-commerce environment develops using the theoretical view of the following theories: RBT combined with Contextualism, TPB, TAM, PERM, TOE, and DIT. Such studies may go a long way in improving the theoretical position of e-commerce literature on developing country SMEs.
- The field of e-commerce adoption in SMEs is very broad and spans other disciplines such as marketing, organisational behavior and many others. As technology continues to evolve and organisations and individuals become more familiar with its use, there is a need to further investigate the contextual factors that affect e-commerce adoption in other

organisations in other global contexts. There is also more to learn in areas where e-commerce decisions are made whilst ICT developments continue to emerge and shape the way businesses are managed. This calls for close-to-the subject and in-depth understanding of how managers make decisions for, or against e-commerce adoption.

- Whilst noting that SMEs in developed and developing countries have largely not capitalised on e-commerce adoption, extant literature has not fully unearthed circumstances of failure or discontinuity in SMEs but instead has drifted to follow best-example approaches of ICT and e-commerce development. This has starved the research community from knowing other aspects of SME e-commerce development in organisations. This study calls for further investigation on aspects of failure, discontinuation or lack of adoption of corporate websites in SMEs especially as managers critically analyse the various options available and the outcome of their decisions.
- The revelation of the socially-inclined e-commerce environment needs further investigation to reveal how social-technical features of e-commerce transactions emerge and exist in other contexts. Therefore, issues of culture, trust, and how different regions and countries embrace them, are other areas needing further investigation.

7.5 Strategies for Improving E-commerce Adoption in SMEs

This section provides strategies for improving e-commerce adoption in Botswana SMEs in response to research question 4. The response is tackled in two ways:

1. the readiness of the local environment, and
2. the readiness of the local SMEs themselves

7.5.1 The Readiness of the Local Business Environment

A key determining factor in e-commerce adoption based on the findings of this study is the lack of appropriate e-commerce policy that can guide business operations in SMEs in Botswana. This can be attributed to the GOB whose efforts have been slow and inadequate to support SME e-commerce initiatives. Thus BTA, a subsidiary of the GOB concerned with

ICT policy, needs to enhance and speed-up e-commerce regulation so that business organisations and individual consumers can fully participate in e-commerce opportunities. Furthermore, the GOB may also need to formulate mechanisms for training SMEs on the latest developments in e-commerce adoption. These can be done in conjunction with other stakeholders in the public and private sectors, and other global organisations to make sure that Botswana SMEs are up-to-date with international standards.

Other institutions in the business environment such as BOCCIM, LEA, CEDA, will be able to respond to what the GOB has decided and proceed to implement support services for the benefit of local SMEs. Organisations like the Local Enterprise Authority (LEA) and BOCCIM need to incorporate e-commerce initiatives and other related ICT topics that can benefit SMEs when they plan and organise local conferences, seminars, and other industry activities. ICT and e-commerce issues in SMEs have hardly been discussed in previous local conferences that were organised by LEA.

7.5.2 The Readiness of the Local SMEs

A general recommendation and strategy that applies to all SMEs is that managers need to clearly analyse and understand the contextual factors in their organisations in order to make the right decisions for e-commerce adoption in their firms. This is because different organisations have peculiar needs in relation to e-commerce (Stockdale and Standing, 2006) and various prevailing circumstances in the SME interact differently with the industry and national factors (Martinsons, 2008). SME managers need to be abreast with e-commerce developments and should not resist exploring new technological innovations for global business. The following sections provide strategies for the selected SMEs in this study based on the extent of e-commerce penetration and appreciation in the firm. These suggestions are made with the understanding that financial resource could be found for SMEs to undertake these tasks.

7.5.2.1 C5Home

C5Home employs B2C, B2B, and mobile commerce to achieve its business objectives. They might need to increase sales by improving visibility of their website to online consumers,

although this is not a key challenge at the moment. Organisational and environmental factors that can provide continuous improvement by attracting more sales are crucial. The firm needs to collaborate with other organisations with similar e-commerce strategies, and third-party web-hosting firms to market the firm on the global market (Mesquita & Lazzarini, 2008). Further, the firm can employ web 2.0 functionalities such as social networking media (Yan, 2011), and where possible, develop web logs to supplement the website marketing features.

7.5.2.2 C1Alpha

The firm has B2B, B2C, and mobile commerce adoption which are socially-inclined. There is need for sensitivity to the preferences, buying trends, and other cultural characteristics of the current and potential online consumers when considering improvements to this e-commerce posture. The managers' ability to know internal strengths and identify what IS and ICT resources exist in the external environment could assist in keeping e-commerce afloat at C1Alpha. There is also need to incorporate issues of trust, privacy, and security, in the whole process of online ordering, payment, and delivery of e-commerce products and services. Other suggestions that relate to Web 2.0 applications as suggested in C5Home may also be considered for C1Alpha.

7.5.2.3 C6Lodge

C6Lodge has been employing B2B, B2C, and mobile commerce for e-commerce adoption. The firm has just subdued a technological challenge by re-activating its website and so, there is desire to increase sales by improving visibility and attractiveness of the website to online consumers. There is need for other personnel in the firm to be directly involved in e-commerce initiatives rather than depending on the owner manager. The firm needs to explore further collaboration with third-party agents for web-hosting and other e-commerce-related support and maintenance services. Thus, the firm can employ social networking media and other Web 2.0 marketing techniques to improve the quality of its website.

7.5.2.4 C2Beta

C2Beta's e-commerce adoption can be characterised as B2B, B2C, B2E, intrabusiness, and mobile commerce. Its business objectives are defined by the local market mainly through the

GOB. Other local companies provide some smaller portion of business to C2Beta. The firm needs to re-design its website to make it more appealing to online visitors. Further, the corporate website could be developed to include order and payment features, means of tracking visitors, and some web 2.0 functionalities. The firm must continue to use search engines such as Google, Yahoo, and other popular tools to obtain specialised information to service its clients. The firm needs to understand GOB's business needs, and possibly, streamline these through the contract management system that is already in place. A more pragmatic approach needs to be implemented to service local businesses with Internet services, and there is need for more open collaboration with other peer organisations in the country, particularly the Internet service providers.

7.5.2.5 C3Gamma

C3Gamma's e-commerce adoption can be characterised as B2B, B2C, B2E, intrabusiness, and mobile commerce. Its strategies may be similar to C2Beta; however the managerial structure of the firm may dictate a different dimension in e-commerce improvement. Further, understanding its customer needs is very important for C3Gamma, just like any other firm in the study. C3Gamma needs to improve its website outlook by incorporating new features such as order and payment services, means of visitor-tracking and providing feedback, and some web 2.0 features. These will soon be useful as individuals and business organisations in the country are upgrading their ICT profile to accommodate new ways of undertaking e-commerce.

7.5.2.6 C4Teq

C4Teq presents B2E, B2C, B2B, mobile and intrabusiness e-commerce, although most of these are applied using e-mail and Internet applications. The development of the website features will add more breadth and quality to its e-commerce features and provide new dimensions for the firm's business continuity and competitiveness. Thus, the strategies for C5Home can be further explored in this firm.

7.5.2.7 C7Panda

C7Panda presents B2C, B2B, and mobile e-commerce. The e-commerce adoption process in the firm requires organisational attention firstly by involving more personnel in the firm who can own and manage the process. Furthermore, the corporate website needs to be re-designed to target the needs of its business. C7Panda may also add new website features such as order and payment services, visitor-tracking features, and some web 2.0 functionalities, to specifically target the needs of its customers and suppliers in South Africa, and the global world.

7.5.2.8 C8Estate

C8Estate presents B2C, B2B, and mobile e-commerce, with the use of e-mail and Internet applications. The development of the website is being anticipated to allow it to reach local and regional markets. Specific features on the corporate website could incorporate order and payment features, some means of tracking visitors, and the provision of social networking media.

7.5.2.9 C9Autoco

C9Autoco has B2C, B2B, and mobile commerce, which are minimally defined with the use of e-mail and Internet applications. The firm needs to include other senior personnel in the development of e-commerce rather than depending on the general manager for all Internet-related work. The firm is advised to consider the development of a corporate website to target the needs of the local and global markets for their products and services.

7.6 Reflection on Experience of Research

This study investigated factors affecting e-commerce adoption in nine SMEs in Botswana context. The experiences of undertaking interviews in an interpretive approach have been overwhelming, but nonetheless have put to test the philosophy of interpretivism to guide e-commerce adoption research in developing country SMEs. Klein and Myers (1999) principles for conducting and evaluating interpretive field research were adopted as described in section 4.4.1. The relevance of the fundamental principle of the hermeneutic circle to guide and provide direction to other subsequent principles was evidenced in this study. As already

alluded to earlier on, the unearthing of factors of e-commerce adoption in the SMEs was done naturally mainly through interviews with managers who were knowledgeable of the social and historical background of ICT development in their firms. A narration of each organisation's experiences was able to lead the point to key issues in the research question such as nature and characteristic of SME e-commerce environment, the factors that affected the adoption, thereby indicating manager's preferences in the decisions they made and the reasons for those preferences based on the local business environment. The iterative nature of the process thus ensued throughout the period of field work; in the interaction between the researcher and individual managers, and also for a particular SME in its own context, to explain the factors affecting the e-commerce adoption process. The hermeneutic aspect was also employed in the review of related literature on SMEs and e-commerce adoption to aid in answering the research questions. Furthermore, all artifacts of e-commerce adoption as defined in this study such as; the use of e-mail, the Internet, and the SME websites were incorporated into the hermeneutic pool to aid in drawing meaning of what occurred in the organisations.

The application of the remaining five principles was particularly insightful; the principle of contextualism, the principle of Interaction between researcher(s) and subjects, the principle of abstraction and generalisation, the principle of dialogical reasoning, and the principle of multiple interpretations. The principle of contextualism requires critical reflection of the social and historical background of the research setting so that the intended audience can see how the current situation under investigation emerged. Thus, the narratives in the SMEs depicted the day-to-day and natural occurrence of business in Botswana context. Further, the nature and characteristic of an SME dictates the type of e-commerce that they can adopt. Each SME in the study adopted a particular position based on contextual circumstances, regarding the scope, magnitude and breadth of e-commerce. Another dimension of contextualism involved the local Botswana environment as a whole and how the social and economic issues in the country impact on local SMEs. The other area of context involves the region of Southern Africa that encompasses Botswana. Documented research on ICT and e-commerce adoption in developing countries of Southern Africa has been less than in developed countries

or regions. This study therefore provides a contribution in this regard, as patterns of e-commerce adoption were discovered in the process of interviewing. The Principle of Interaction between Researcher(s) and Subjects requires a critical reflection on how the data was socially constructed between the researcher and the research subjects. Interactions were achieved in several ways, such as; face-to-face semi-structured interviews between the researcher and the SME managers, informal meetings with managers to plan for further meetings, lunch-hour discussions and follow-up telephone conversations. These interactions occurred in a hermeneutic circle to allow the researcher and the participants to be part of the historic perspective of the SME and e-commerce developments. The principle of abstraction and generalisation requires interpretive case studies to relate unique instances gathered in the fundamental principle of the hermeneutic circle and the principle of contextualism into general concepts or theories that depict the nature of human understanding and social action (Vorakulpipat, 2008; Klein and Myers, 1999). The experiences of the eight SMEs (C1Alpha, C2Beta, C3Gamma, C4Teq, C5Home, C6Lodge, C7Panda and C8Estate) in the development and unearthing of factors of e-commerce adoption provide evidence of diverse issues that confront managers in decision-making roles. The next principle, the principle of dialogical reasoning requires the researcher to confront his or her preconceptions (prejudices) that guided the original research design with the data that emerges through the research process. Furthermore, the principle also suggests that the researcher should make the historical intellectual basis of their research as transparent as possible to the reader and herself. One such example is the definition of e-commerce in this study that came under serious scrutiny as popular notions in the developed world could not be upheld. SME managers also chose to define e-commerce to align with the circumstances that prevailed in their organisations. The researcher thus resolved to define e-commerce to accommodate the minimum circumstances of being able to use e-mail and the Internet, and also those situations that could allow high levels of usage using the web-based applications. The principle of multiple interpretations requires the researcher to examine the influences that the social context has upon the actions under study by seeking out and documenting multiple viewpoints along with the reasons for them. In this study, multiple viewpoints were held by managers in their understanding of what e-commerce adoption means to them.

The researcher interacted with all managers by conducting semi-structured and unstructured interviews at the SMEs location. More interactions followed through telephone conversations to provide clarification on issues raised in previous interviews. Furthermore, other means of understanding e-commerce development in the firm were incorporated using direct observation, document and website analysis, and analysis of the external business environment of the SMEs. Since all researchers world-wide agree that the dynamism of ICT is a forever moving projectile (Karakaya & Shea, 2008), it does imply therefore that the subject may not necessarily come to a close. In fact, this leads us to employ other approaches that can assist to understand the phenomenon better. This study sets an example in a small landlocked under-developed country in Southern Africa. The interpretation of the results needs to be understood alongside the context of the study and the research approach undertaken. The study therefore offers a particular emphasis on peculiar contextual issues that affect e-commerce adoption in SMEs as opposed to blanket statements that conclude issues of e-commerce adoption in an abrupt manner. It is not expected that similar results may surface in other contexts due to the different research approaches and understanding about research phenomena that motivate researchers. Thus, researchers may take time to situate themselves in the phenomenon and context of their study to undertake the process of e-commerce adoption.

Finally, the application of Klein and Myers' (1999) set of principles has been proven to be useful in evaluating the quality of interpretive e-commerce adoption research in SMEs. There is potential that more related research in e-commerce and e-business can be evaluated by employing these set of principles.

7.7 E-commerce Continuity for the Selected SMEs

The researcher is grateful that some participating managers have shown interest to further collaborate in the investigation of e-commerce adoption in their organisations after the completion of this study. As a form of continuity in understanding contextual trends in e-commerce adoption in Botswana, the researcher made a commitment to some SMEs to

conduct a workshop that confronts practical issues of ICT and e-commerce implementation. I plan to facilitate a workshop for research participants, and other key stakeholders such as the GOB, on practical issues related to e-commerce development in Botswana. It is hoped that funding for the workshop can be sourced from the University of Botswana's business clinic, a unit that provides university linkage with local SMEs by providing entrepreneurial and business management skills.

7.8 Final Conclusion

This final chapter started by providing the summary of the major research findings. The study outlined the key research findings based on the research questions. The study aimed to answer questions that relate to the nature and characteristic of the SME e-commerce environment in Botswana, and these have been revealed in the context of nine SMEs that participated in the study. All SMEs used e-mail and the Internet for various e-commerce transactions but the capitalisation to using corporate websites was observed in C1Alpha, C2Beta, C3Gamma, C5Home, C6Lodge, and C7Panda. The medium firms; C2Beta, C3Gamma, and C7Panda, have generally focused on marketing their businesses or simply making a web presence through their corporate websites. Furthermore, three of the above firms have employed online ordering and/or payment facilities such as C1Alpha, C5Home, and C6Lodge. None of the SMEs is actively engaged in Web 2.0 applications, although the use of social networking media is just emerging. The second research question was concerned with what factors affected e-commerce adoption in these SMEs, and in response, the factors have been reported in the study, based on the interpretive approach. The third research question aimed at understanding the interaction of the factors and how they determine the extent of e-commerce adoption in organisations. These issues have been addressed by developing a conceptual framework which is a key contribution to knowledge in e-commerce adoption research. This study also provides an interpretive evaluation of e-commerce adoption research which is another contribution to knowledge.

Ethical considerations encountered in this study have been provided and the study has been evaluated based on some principles for interpretive approach. The chapter provides some implications for research and practice. A key research implication concerns the need for a speedy process of formulating e-commerce policy. This study provides another dimension of e-commerce adoption in SMEs in a small and government-inclined type of economy, and thus contributes to literature in developing countries.

The influence of the local business environment has had a bearing on the nature of e-commerce adoption in the selected SMEs, particularly the low interaction of institutions that are designed to support e-commerce, and the dual of role of government in fostering and creating an enabling environment, and at the same time acting as a business partner to the SMEs. A key role for the GOB is to enact an e-commerce policy and ensure that adequate attention is made towards SME concerns in the local environment. So far, the national ICT policy has lagged behind for five years.

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Appendices

This section describes some of the materials that have been produced in the course of the study. Three types of materials were generated. These are: 1) the ethical documents produced from the University of Salford research ethics panel, 2) A sample of the questionnaire instrument that was used as a guide to the interviews has been attached; including the informed consent form and the data protection agreement form, and 3) the government of Botswana research permit. Copies of filled-in consent forms have been submitted to the supervisor. All recorded interviews have been stored on a CD-ROM and are being kept by the researcher and supervisor for a specified period.

Appendix A: Sample Interview Questions

AN INTERPRETIVE CASE STUDY OF THE FACTORS AFFECTING ELECTRONIC COMMERCE ADOPTION BY SMALL AND MEDIUM ENTERPRISES: THE CASE OF BOTSWANA

SEMI-STRUCTURED FACE-TO-FACE INTERVIEW QUESTIONS

INSTRUCTIONS:

The following list of questions is a guide to the type of issues that this study is concerned about. The questions are therefore sent in advance so that you can prepare and also familiarise yourselves with the terms used in this study.

Sample interview questions		
Part One: Background Information and Organisational characteristics RQ1 <i>What is the nature and characteristic of Botswana SME e-commerce environments?</i>		
1	What is the historical background of your organisation?	
2	What products or services does your organisation offer?	
	What information and communication technology is in place?	
4	What type of internet connection do you have?	
5	Do you use any of the mentioned ICT to achieve your business values? Explain	
6	How does your organisation acquire ICT resources and e-commerce knowledge to do business?	
7	Does your organisation use Internet and e-commerce to enhance your business objectives? If so, explain how your organisation uses the above.	

8	If applicable, what applications have been used to take advantage of e-commerce opportunities offered by the local or global market? please explain?	
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Sample interview questions (continued).		
Part Two: Using Internet and Electronic Commerce-Firm level – RQ2		
<i>What factors affect e-commerce adoption or non-adoption in Botswana SMEs?</i>		
9	What challenges has your organisation faced in using Internet and e-commerce applications to accomplish business tasks? a) in the local business environment (within Botswana): in the global business environment (outside Botswana):	
10	Where does the responsibility lie for managing the internet and e-commerce technology and the approach for adoption and business planning, in your organisation?	
11	How does management perceive the role of e-commerce in the future operations of your firm?	
12	In what ways has Internet and e-commerce been adopted (if applicable) in your firm?	

No.	Question	Research Question
Table Sample interview questions		
Part Three: RQ2, RQ3		
13	What kind of support have you received, if any, from other local organisations to accomplish e-commerce initiatives in your organisation? Explain.	
14	Explain the challenges/benefits brought in by the external local environment in the application of ICT and e-commerce in your organisation	
15	Why does your firm use (or not) use e-commerce?	
16	Do you think your firm has made the right decisions for or against e-commerce adoption? Why? and How?	
Part Four: RQ3		
Answers to RQ3 were also intuitively derived through the integration of literature, company reports and the responses and analysis of all research questions.		

Appendix B: University of Salford Ethics Panel

Research Ethics Panel

Ethical Approval Form for Post-Graduates

Ethical approval must be obtained by all postgraduate research students (PGR) prior to starting research with human subjects, animals or human tissue. A PGR is defined as anyone undertaking a Research rather than a Taught masters degree, and includes for example MSc by Research, MRes, MPhil and PhD. The student must discuss the content of the form with their dissertation supervisor who will advise them about revisions. A final copy of the summary will then be agreed and the student and supervisor will 'sign it off'.

The applicant must forward a hard copy of the Form to the Contracts Office once it is has been signed by their Supervisor and an electronic copy MUST be e-mailed to the Research Ethics Panel through Max Pilotti m.u.pilotti@salford.ac.uk. The applications are processed online therefore the form cannot be submitted without the electronic version.

(The form can be completed electronically; the sections can be expanded to the size required)

Name of student: Alice Phiri Shemi

Course of study: PhD

School: Business

Supervisor: Mr Chris Procter

Research Institute: IRIS

Name of Research Council or other funding organisation (if applicable):

Not applicable

1a. Title of proposed research project

Understanding Key Factors Affecting Electronic Commerce Adoption by SMEs: An Interpretive Study in Botswana
--

1b. Is this Project Purely literature based?

NO (delete as appropriate)

2. Project focus

Small and Medium Enterprises (SMEs)

In the context of this study, the definition of SME in Botswana is stated as follows; 1) a Small enterprise; is that which employs less than 25 employees and 2) Medium enterprises; that which employs less than 100 employees (Ministry of Commerce and Industry, 1999).

3. Project objectives (maximum of three)

- i. To explain the key factors affecting adoption or non-adoption of e-commerce in SMEs,
- ii. To explain how the factors are represented in the SMEs
- iii. To explain how the nature and extent of ICT and e-commerce adoption in SMEs
- iv. To understand and explain why the introduction and sustenance of e-commerce activities in SMEs in Botswana remain a challenge.

4. Research strategy

(For example, where will you recruit participants? What information/data collection strategies will you use? What approach do you intend to take to the analysis of information / data generated?)

This study will follow a case study approach in the interpretive paradigm to study details of SME e-commerce adoption in Botswana (Pettigrew, 1987, 1990; Klein and Myers, 1999) as the aim is to provide an explanation of issues relating to the adoption of e-commerce and not to predict future events. The case study approach has been particularly chosen in order to answer questions relating to the 'What', 'How', and 'Why' issues in a relatively new area of research (Yin, 1994, 2003; Benbasat et al, 1987) such as e-commerce. There are no predefined variables or fixed control of any variables (Benbasat et al, 1987). This approach also provides a deeper understanding of the issues facing SMEs by being closer to the participants rather than using a survey which is distant and may not be particular about other characteristics relating to the SME physical and social environment. The design strategy will follow a multiple case study approach to provide a description of what SMEs are facing in e-commerce adoption in Botswana. The multiple case study strategy will follow replication logic (Yin 1994) whereby a case inquiry is replicated over several other sites in their natural setting. The unit of analysis will be the organisation as the study is interested in looking at the extent of the utilisation of internet and web technologies which are regarded as pre-requisites to e-commerce.

Selection of Research Sites

Purpose sampling method will be used to select SMEs. A list of SME organisations will be obtained from Botswana Chamber of Commerce and Industries (BOCCIM). In order to validate the existence of organisations on the BOCCIM list and to also solicit participation in

the study, telephone calls will be made to all potential organisations to establish their willingness to participate. The organisations so chosen would suit characteristic of being able to provide such explanatory detail relating to the purpose of the study. All participating organisations must have adopted Internet and web technologies in their business. Nine organisations will be selected for the case studies (which is within the range from four to ten cases for in-depth analysis recommended by Eisenhardt (1989). The objective of this study is not to generalize the findings (Mehrtens et al, 2001) but rather to provide an explanation of how and why SMEs use Internet and e-commerce and what factors influence the extent of their use. The in-depth data from each case will also provide an opportunity to investigate RBT through the lens of e-commerce adoption in SMEs. Due to the small structure of the Botswana economy, cases will be chosen from ICT and Tourism industries due to the significant contribution they have made to the economy of Botswana. At least one case from each of the industries selected must represent a success and a failure in e-commerce adoption.

At least three persons (an SME owner or manager and two other key informants) from each organisation will be interviewed on various issues relating to e-commerce adoption and non-adoption in their organisation.

5. What is the rationale which led to this project

(for example, previous work – give references where appropriate)

In comparison to developing countries, not many studies have been done to understand what factors influence e-commerce adoption amongst SMEs (Looi, 2005; Molla and Licker, 2005b). A number of studies have focused on developed countries and other rich nations (Van Akkeren and Cavaye, 1999; Zhuang and Lederer, 2003; Gibbs et al, 2003; Daniel, 2003; Riemenschneider et al, 2003; Grandon and Pearson, 2004; Sharma et al, 2004; Hong and Zhu, 2006; Tan et al, 2007).

Most studies aimed at understanding factors either motivating or inhibiting e-commerce adoption in SMEs have used approaches that have been distant from the participants. Few studies have unearthed the prevailing circumstances that cause SMEs to adopt or not to adopt e-commerce. I argue that a holistic approach that involves participants in their contextual and natural settings will provide more insight as to what factors influence SME e-commerce adoption in developing countries.

In Botswana, prior studies on ICT needs and e-commerce in SMEs revealed a low appropriation and uptake of new technological innovations, including e-commerce (Duncombe and Heeks (1999); Shemi and Magembe, 2002; Iyanda and Ojo; 2008). Generally, they cite costs, limited availability of infrastructure, illiteracy and small size of the economy as some of the contributing factors to ICT and e-commerce adoption. Although these studies have been useful in providing information for the understanding of e-commerce adoption in SMEs, they do not provide detailed information of what key issues affect the adoption and how the organisational structure interacts with e-commerce adoption decisions. There is need to understand contextual issues influencing e-commerce adoption

decisions. What makes business sense for the organisation as opposed to other norms, beliefs and power relations among the actors involved in the SMEs adoption of e-commerce will need to be explained. Further, previous studies have largely been surveys and exploratory in nature thereby lacking the depth that could reveal critical issues affecting SMEs.

6. If you are going to work within a particular organisation do they have their own procedures for gaining ethical approval

for example, within a hospital or health centre?

No (delete as appropriate)

If YES – what are these and how will you ensure you meet their requirements?

7. Are you going to approach individuals to be involved in your research?

YES (delete as appropriate)

If YES – please think about key issues – for example, how you will recruit people? How you will deal with issues of confidentiality / anonymity? Then make notes that cover the key issues linked to your study

Data Collection Techniques and Analysis

The data collection procedure will be a combination of semi-structured face-to-face interviews, unstructured interviews, document analysis and local SME conference and exhibition forum. This is expected to take a period of fifteen months, from late 2009 to late-2011.

1. Face-to-face Semi-Structured Interviews

Pilot interviews will be performed first with friends who are SME owners or managers. The choice of SME friends is aim is to obtain third-party opinion on the content of the questionnaire without necessarily taking much of their time. Feedback from these will be used to revise the interview questions in order to align them with the research objectives and also to improve the wording of the interview questions. Fifty-four semi-structured interviews will be

conducted in two phases:

Phase I: Face-to-face semi-structured interviews will be arranged with one of the key managers (a director of the SME) to discuss questions relating to e-commerce adoption. Similar sets of interviews will be arranged at a suitable time and place with the two other key informants in the firm. Three interviews will be conducted at this level in each case and these should take from one to two hours in duration. A sample of issues to be discussed will be sent (as guided in Appendix 1) prior to the date of the interview to prepare the interviewees and to raise awareness about the intended study. Some questions have been slightly structured in order to focus the interview on e-commerce issues. The purpose of the interview is to answer questions regarding the following issues raised in the research question, such as:

1. The nature and characteristic of the SME e-commerce environment in Botswana
2. The factors that affect e-commerce adoption in Botswana SMEs.
3. The impact of firm size on the growth and development of e-commerce in Botswana SMEs.

Consent will be sought as to how long the interview should take and whether it can be recorded for further analysis. Each interview will be tape-recorded, with consent from interviewee. Interviewees will have the right to answer or refuse to answer some questions without being put to task. After the end of the Interview, the notes and taped information will be replayed to the hearing of all interviews participants. In case of time constraints from the interviewee side, a report would be sent and or a telephone conversation would be conducted to establish the exact position of the facts collected and obtain the views of the SME. This will ensure that the notes gathered during the interview are a true reflection of the information that was provided by the interviewees. Scripts from each of the three interviews will be analysed to establish similarities or differences from the key issues discussed.

Phase II: The second phase of the interview will be more unstructured to allow for more penetrating questions and freedom of interaction between the interviewer and interviewee. The three managers who participated in the first phase are brought in to participate in the second phase to allow continuity in the discussion of issues. The unstructured interview is expected to last between one to two hours. The objective of the unstructured questions is to seek answers to the following research questions:

1. How would you describe e-commerce challenges in your firm?
 2. Why did you decide to make the website online or offline?
- Interviewees will be encouraged to explain the application of internet and e-commerce in their own ways, also giving support for the choices they've made in the past and what decisions they intend to make in the future. A sample of the questions to be asked is provided as Appendix 3.

2. Document Analysis

A visit will be made to the site selection to gather details about day-to-day tasks. With the consent of the organisation, reports and other material will be analysed to establish facts about information and communication technologies (ICT), internet and e-commerce adoption in the organisation. Notes will be written about what ICT are used; specifically how and whether Internet is used; who uses them; what processes require their use; what products and services are offered and whether Internet is used to market them to consumers. The notes will be

compared with information gathered from the interview exercise. The organisation will also be assured of confidentiality. A data protection form (shown as Appendix 4) will be signed to affirm the confidentiality.

3. Local SME conference and exhibition Forum

The researcher will also gather data relating to practical issues on e-commerce adoption at the annual conference and exhibition forum for SMEs in Botswana. The first of these conferences was held in April 2009. Interactions among forum participants will answer questions relating to the viability of e-commerce among SMEs in Botswana as the status on the prevailing regulatory framework in the country.

4. Data Analysis

Ideally, parts of analysing case data will have begun whilst data collection and will continue through to this stage (Patton, 2002). Within each case, field notes or scripts will be organised to illuminate any similarities and differences. Guided by the research question, data will be categorised in terms of themes and patterns to understand e-commerce issues raised by interviewees. Scripts and notes gathered from the structuration concepts in the unstructured interviews will be analyzed to formulate a picture of each case's position. It will be important to fully understand the position of each organisation before proceeding to cross-examine the cases. In cross-case analysis, Miles and Huberman's (1984, 1994) method of contrasts and pattern clustering will be employed to produce matrices. Cases will be analysed in pairs, then in groups of three relating to industries, to look for similarities and differences emerging through the data. New findings emerging through these analyses will also be captured. Various methods were employed in analysis; content analysis, drawing of themes and making comparisons.

8. More specifically, how will you ensure you gain informed consent from anyone involved in the study?

Potential organisations will be requested if they want to participate in the study. I will make an appointment through telephone call to visit the organisation in person. If organisation agrees, I will introduce the study purpose and objectives and what is expected from the organisation. The three persons so chosen to participate by their leaders will be required to sign a form to state that they willingly participated in the study. An example form is shown in this document

9. Are there any data protection issues that you need to address?

YES / (delete as appropriate)

If YES what are these and how will you address them?

I will make sure that all data collected from the organisations are not disclosed to third parties for whatever purposes. A letter of affirmation will be signed by the researcher and the interviewee. A sample is shown as Appendix 4.

10. Are there any other ethical issues that need to be considered? For example - research on animals or research involving people under the age of 18.

This research will involve key managers of SMEs who are above the age of 18, irrespective of gender.

11. (a) *Does the project involve the use of ionising or other type of “radiation”*
NO

(b) *Is the use of radiation in this project over and above what would normally be expected (for example) in diagnostic imaging? NO*

(c) *Does the project require the use of hazardous substances? NO*

(d) *Does the project carry any risk of injury to the participants? NO*

(e) *Does the project require participants to answer questions that may cause disquiet / or upset to them? NO*

If the answer to any of the questions 11(a)-(e) is YES, a risk assessment of the project is required.

12. How many subjects will be recruited/involved in the study/research? What is the rationale behind this number?

For the six case sites selected, thirty-two semi-structured and unstructured interviews will be conducted to establish in-depth information on the issues surrounding SME e-commerce adoption in Botswana. This number will sufficiently provide the amount of data and information for in-depth case analysis in SMEs in Botswana context. Researchers (Eisenhardt, 1989; Benbasat et al, 1997) recommend that a minimum of four and up to ten cases may be sufficient in a multiple case study research.

Please attach:

- A summary in clear / plain English (or whatever media/language is appropriate) of the material you will use with participants explaining the study / consent issues etc.

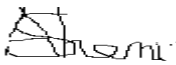
- A draft consent form – again in whatever media is suitable for your research purposes / population.
- A copy of any posters to be used to recruit participants

Remember that informed consent from research participants is crucial; therefore your information sheet must use language that is readily understood by the general public.

Projects that involve NHS patients, patients' records or NHS staff, will require ethical approval by the appropriate NHS Research Ethics Committee. The University Research Ethics Panel will require written confirmation that such approval has been granted. Where a project forms part of a larger, already approved, project, the approving REC should be informed about, and approve, the use of an additional co-researcher.

I certify that the above information is, to the best of my knowledge, accurate and correct. I understand the need to ensure I undertake my research in a manner that reflects good principles of ethical research practice.

Signed by Student

..... 

Date ...25 Aug. 09.....

In signing this form I confirm that I have read and agreed the contents with the student.

Signed by Supervisor

Date

Appendix B2:

AN INTERPRETIVE CASE STUDY OF THE FACTORS AFFECTING ELECTRONIC COMMERCE ADOPTION BY SMALL AND MEDIUM ENTERPRISES: THE CASE OF BOTSWANA

Introduction to the Study and Its Objectives:

The purpose of this study is to investigate the factors affecting electronic commerce (e-commerce) adoption in Small and Medium Enterprises (SMEs). The three main objectives of

the study are: 1) To explain the key factors affecting adoption or non-adoption of e-commerce in SMEs, 2) To explain how the introduction of internet and e-commerce interact with the organisation structure of small and medium enterprise, and 3) To explain how SMEs make decisions for or against the adoption of e-commerce in their organisations.

The study adopts a qualitative and interpretive case study approach to solicit natural and context-specific views relating to the adoption of e-commerce among SMEs in Botswana. The study is conducted by the undersigned as a partial requirement for the fulfillment of the PhD in Information System at the Salford Business School, University of Salford, UK. The data and results collected in this study will be used solely for academic purposes and will not be divulged to any third party for whatever reasons.

You are being requested to provide the truth about the circumstances relating to electronic commerce adoption in your organisation. You are also free to refuse to answer some or all of the questions that will be asked without being put to task about why. You are also free to express yourself and present your responses in the language that makes you feel more comfortable. A research assistant will assist with the translation of the local language (Setswana) to English language.

The sample questions attached are being sent to you in advance to familiarise the interviewee with the terms and questions of the interview. Responses from each interviewee will be anonymous and a data protection agreement will be signed.

If you agree to participate in this study, a consent form will also be signed.

Appendix C: Interviewees' Consent Forms

Filled-in consent forms are being kept by the researcher and supervisor. A sample is provided below:

AN INTERPRETIVE CASE STUDY OF KEY FACTORS AFFECTING E-COMMERCE ADOPTION BY SMALL AND MEDIUM ENTERPRISES: THE CASE OF BOTSWANA

LETTER OF INFORMED CONSENT

TO WHOM IT MAY CONCERN

I (Name) -----

Of _____ Company/ City/Town/Village/Ward

Hereby state that the researcher has explained to me the purpose of the research, and the type of questions I will be invited to answer and that I have voluntarily agreed to participate as a representative of my organisation.

I also willingly *agree/disagree*to have the interview recorded for purposes of undertaking this research.

Further that the information gathered in this interview will be read to me after the interview and is not objectionable by me.

Signature: _____
Date: _____

AN INTERPRETIVE CASE STUDY OF THE FACTORS AFFECTING ELECTRONIC COMMERCE
ADOPTION BY SMALL AND MEDIUM ENTERPRISES: THE CASE OF BOTSWANA

LETTER OF DATA PROTECTION AGREEMENT

TO WHOM IT MAY CONCERN

I (Name) -----
Of _____ City/Town/Village/Ward

Hereby acknowledge and agree that the data and materials availed to the researcher are for academic purposes only and that this information will not be disclosed with the company name to any third party such that the position and security of the organisation is brought to disrepute.

Researcher: _____	SME informant: _____
Signature: _____	Signature: _____
Date: _____	Date: _____

Appendix D: Recorded interviews

A CD-ROM that contains all recorded information will be submitted to the supervisor and examiners.

Appendix E: Government of Botswana Research Permit

This is kept by the researcher and the supervisor.

Appendix F: Telephone Interview questions

SME	Questions
C1Alpha (4)	(Neela) How is the relationship with firms in the local industry affecting your business in particular?
	(Neela) Do you think your business could improve if the relationship obstacles you explained earlier had been removed? Kindly explain your position.
	(Neela) What is the impact of social networks such as Facebook, Twitter, etc., on online business?
	(Neela) How do the suppliers of the arts and crafts products use ICT to transact with C1Alpha?
C2Beta (5)	(Steve-General Manager) Why has your organisation maintained the website all this long without payment facilities?
	(Steve) Could you explain why e-commerce is still relevant to you as a firm despite the current status of the website?
	(Steve) How does the local business environment such as BOCCIM or others assist (or not) in advancing e-commerce in your firm?
	(Steve) How is the business relationship with GOB affecting or impacting the development of e-commerce in the firm?
	(Steve) Could you comment on the use of social networks such as Facebook, Twitter, etc., and cloud computing services in your business?
C3Gamma (4)	(Henry) How do you explain the application of e-commerce in your firm seeing that you have several ICT resources but the website has no payment facilities?
	(Henry) Describe your work relationship with government with regards to e-commerce policy
	(Mpho) How do you justify the use of e-commerce then based on the earlier position that you described?
	(Mpho) How is Internet research carried out in your firm? Is there a pre-planned format for obtaining information from outside?
C4Teq (3)	(Dennis-Managing Director) Have you tried to go back to the earlier idea of providing a mobile service to local consumers? if so what have been the result of these efforts from the government side? And from the consumer side?
	(Dennis-Managing Director) In a previous meeting with your IT manager, it had been explained that the reason for discontinuing to maintain the website was that the company wanted to pay particular focus on local service delivery whereas according to you, the reason was that the firm was unable to maintain the website due to high costs of maintaining Internet facilities, could you please clarify this position?
	(Dennis-Managing Director) How would you explain your firm's current position in applying e-mail and Internet for achieving the business goals and objectives?
C5Home (3)	(Nicky) What is the impact of social networks such as Facebook, Twitter, etc., on your business?
	(Tumelo) What role does the GOB contribute to enhancing online business in C5Home?
	(Nicky) Have you been able to trace the financial contribution of the GOB or the international guests to the firm? Please explain or elaborate if possible.
C6Lodge (2)	(Pitso-Managing Director) You did mention in earlier interviews that you did employ a mobile phone just after the website was developed years ago. What has been your experience?
	(Pitso) What role has the GOB or other local firms contributed to the development of e-commerce in your firm? Considering the dormancy of the website at one time and its resumption later.