

Chapter 2

Challenges to the Adoption of E-commerce Technology for Supply Chain Management in a Developing Economy: A Focus on Nigerian SMEs

Gareth R. T. White, Ademola Afolayan and Eoin Plant

Abstract The evolution of Information Technology has enhanced consumers' and organisations' ability to gather information along with purchasing goods and services. Information Technology offers businesses increased competition, lower prices of goods and services, the choice of comparing products from different vendors and easy access to various vendors anywhere, anytime. Therefore, Information Technology facilitates the global nature of commerce. In developing countries, e-commerce dominates their economic activities. E-commerce is one of the leading non-oil sectors in Nigeria, 18.9 % GDP. In contrast with developed nations, e-commerce has not been as successfully adopted in developing countries. This chapter addresses the challenges and benefits of e-commerce technology in relation to SMEs in Nigeria. It presents quantitative evidence of SMEs perceptions of e-commerce technology, benefits, and barriers. A number of hypotheses are presented and assessed. Recommendations to mitigate barriers are suggested.

2.1 Introduction

Information Technology (IT) solutions are broadly seen to encompass a wide range of “*software, hardware, telecommunication and information management techniques and applications that are used to create, produce, analyse, process, package, distribute, receive, retrieve, store and interpret information*” (Barba-Sanchez et al. 2007, p. 105).

In almost all developing countries of the world, e-commerce dominates their economic activities (Cloete et al. 2002). The importance of e-commerce in Nigeria cannot be over emphasised (Toyin and Damilola 2012) as it is one of the most vibrant of non-oil sectors in the country. The OECD (2008) identified commerce as one of the leading non-oil sectors in Nigeria, 18.9 % GDP.

G. R. T. White (✉) · A. Afolayan · E. Plant
The Business School, University of South Wales, Pontypridd CF37 1DL, UK
e-mail: Gareth.White@SouthWales.ac.uk

Electronic Commerce (EC) evolved as a result of commerce taking advantage of the diverse benefits IT has to offer (Kapurubandara and Lawson 2006). EC can therefore be described as the utilisation of various IT tools that support the advancement and development of business activities both internally and externally (Ghobakhloo et al. 2011; Chaffey and White 2010).

In this chapter, the authors refer to the combination of EC and IT tools as E-commerce Technology (EcT). We define EcT as any IT tool that aids the sharing of business information among trading partners, coordination and implementation of business transactions.

EC can be of great importance to an organisation in particular SMEs considering the fact that EC aids SMEs in competing with larger organisation and operate on an international scale (Cloete et al. 2002). It is widely accepted that EC enhances the advancement and development of businesses in developing countries. This is motivated by the perceived benefits of IT reducing costs of business processes (Ghobakhloo et al. 2011). Businesses in developing countries are faced with different challenges than businesses in developed countries (Molla and Licker 2005; Ghobakhloo et al. 2011). This suggests that EcT adoption and acceptance in developing countries is faced with a different challenge (Kapurubandara and Lawson 2006; Tan et al. 2010).

In contrast with developed nations, e-commerce has not been as successfully adopted in developing countries (Al-hudhaif and Alkubeyyer 2011). This is supported by Uzoka et al. (2007). Their study suggests the development of EC in developing countries is relatively low. Developing countries are still slow to keep up with emerging IT solutions to aid E-commerce (Kapurubandara and Lawson 2006).

The magnitude of commercial activities taking place in Nigeria and rapid development that has taken place in the field of information technology (Adekunle and Tella 2008) makes it imperative to probe into the possible challenges of EcT adoption by Nigeria SMEs.

The role of small and medium enterprises (SMEs) in developing countries is an important one, contributing to economic growth and thereby job creation and poverty alleviation (Golding et al. 2008; Adekunle and Tella 2008). SMEs are of particular significance to the economic development of Nigeria since they account for around 97 % of privately owned businesses (Ihua 2009). They have been recognized as the backbone of the economy employing approximately 50 % of the work force and providing more than 50 % of Nigeria's industrial output (Adekunle and Tella 2008). They play a significant role in enhancing the quality of human resources, generating employment, building a culture of entrepreneurship, supporting the large scale industries and encouraging the creation of new business opportunities (Harindranath et al. 2008).

SMEs serve many different roles within supply chains, as suppliers, distributors, producers and customers (Hong and Jeony 2006; Koh et al. 2007). The influence of globalisation on SMEs has compelled many of them to adopt EcT solutions in order to survive among increasingly competitive supply networks (Hsin and Anastasia 2008; Ongori and Migiro 2010; Stavoulaki and Davis 2010). There has

been a vast increase in the application and adoption of EcT in organisations for the storing, processing, distributing and information exchange within the firm and along their supply chains (Apulu and Latham 2011). Firms utilise EcT for many purposes, including enhancing efficiency and cost reduction, and for providing better services to their customers (Ashrafi and Murtaza 2008; Apulu and Latham 2011; Harrison and Van Hoek 2011).

2.2 The Role of EcT in SME Supply Chains

Supply Chain Management (SCM) comprises a set of approaches and practices to efficiently incorporate manufacturers, distributors, customers and suppliers. Thus, improving the long-term performance of individual firms and the whole supply chain, facilitating a cohesive and high-performing business model (Koh et al. 2007). The main objective of effective SCM is to set up a major source of competitive advantage for organisations to distinguish themselves from competitors by operating at a lower cost, thus at greater profit, which can be aided by the adoption of EcT (Christopher 2011).

The emergence of EcT has helped organisations achieve greater coordination and collaboration among supply chain partners and automate the supply chain process (Hsin and Anastasia 2008). With the advances and increasing availability of EcT, manufacturers, their suppliers and their distributors can all be linked together into a seamlessly integrated organisation (Stavoulaki and Davis 2010). The ability of SMEs to offer products and assemble goods at low prices within the quality standards stipulated by larger enterprises has helped increase the overall competition of the supply chain (Thakkar et al. 2009).

The implementation of EcT solutions to support SCM by SMEs can be cost saving for an organisation in many ways (Hsin and Anastasia 2008). It can increase flexibility, reduce the occurrence of errors in paper-based activities, achieve faster response times and lower the cost of labour (Alam and Noor 2009).

In spite of efforts being made by many organisations to use EcT solutions to support their supply chain strategy, challenges still exist that inhibit effective integration (Christopher 2011). Much of the literature recognises this is largely due to the fact that most of the suppliers are SMEs, that have limited skills and resources, and therefore makes integration with the rest of the supply chain problematic (Adekunle and Tella 2008).

2.3 Benefits of EcT Adoption

Technological revolution over the years has been a great development and this has changed the way business activities are being carried out both in developed and developing countries. The adoption of EcT offers many benefits across a range of

intra-firm and inter-firm business process and transactions among SMEs and their partners (Ongori and Migiro 2010). EcT is also expected to provide SMEs with competitive advantage along with integration among supply chain trading partners (Bhagwat and Sharma 2007). On the other hand, it is argued that other firms can easily replicate the adoption of a particular EcT solution and therefore it does not necessarily provide a sustainable competitive advantage for the adopting firm (Fasanghari et al. 2008).

The benefits of EcT adoption in SMEs can vary from cost reduction, easy and cheap ways of advertising and marketing, simplified communication with trading partners, to quick response to customers' needs, and the reduction of inefficiencies (Oluwatayo 2010; Singh 2011). The transfer of information electronically through networked computers and shared files can increase and improve the efficiency of an organisation (Ongori and Migiro 2010). EcT adoption in SMEs can greatly reduce operation cost by decreasing the cost of transaction, material cost, procurement cost and logistics cost (Tan et al. 2010).

EcT offers tools for improving external communication and quality of service for established customers, new customers and trading partners. Communication between trading partners helps to organize independent players to work together so as to achieve a common goal—profitability in changing market conditions (Singh 2011). Technologies help in improving the overall efficiency of their daily activities as well as reducing transaction costs and increasing the speed and reliability of transactions (Shiels et al. 2003; Chibelushi and Costello 2009). Radio Frequency Identification (RFID), bar code scanners are examples of EcT tools commonly utilised to improve communication speed and quality between partners (Collins et al. 2010).

Agility is an important factor for modern businesses particularly in their ability to make quick response to customers' changing needs (Li et al. 2008). The adoption of EcT is crucial for the effective performance of SMEs and for the delivery of quick service to meet customer needs (Singh 2011). EcT solutions facilitate storing, accessing and retrieving information electronically for organisational use and also quick decision making to provide a better service to customers (Akhavan and Jafari 2008). Enterprise Resource Planning (ERP) is one of the EcT tools that can help SMEs in forecasting future requirements (Apulu et al. 2011). As organisations grow and EcT becomes more advanced within an organisation, it enables them to determine and forecast buyers' spending habits (Harrison and Van Hoek 2011).

2.4 Barriers to EcT Adoption

E-readiness can be classified as one barrier that houses all other barriers to EcT adoption in developing countries and especially Nigeria. This represents the ability of a country, organisation or an establishment to create, adopt, diffuse and use various components of the networked economy (Uzoka et al. 2007). E-readiness in

developing countries is low when compared with the developed countries which may be responsible for the slow rate of EcT adoption in developing countries.

According to Fawcett et al. (2008) and Ihua (2009) SMEs are not a uniform or standardized set of businesses. They are in fact a highly heterogeneous collection of enterprises and vary substantially by size, sector, age, structure and location. These characteristics can directly influence the organisation's adoption of EcT (Apulu et al. 2011). Nath and Standing (2010) highlight the influence of company size upon the adoption of EcT and also claim that the adoption of EcT is directly related to the type of industry to which the organisation belongs.

Larger organisations are usually in possession of technical, human and financial resources that can be used to aid and enhance the adoption of EcT solutions. It is often a different case with SMEs, particularly in the face of limited financial and human resources (Ashrafi and Murtaza 2008; Mpofu and Watkins-Mathys 2011). However, it has been argued that SMEs are able to exploit EcT opportunities and adopt EcT more easily than larger organisations, simply because of the flexibility advantage they possess that makes decision making faster (Awa et al. 2011; Chuang et al. 2009).

The barriers to utilisation and adoption of EcT in SMEs can be broadly classified as internal and external (Awa et al. 2011; Kapurubandara and Lawson 2006). Internal barriers are those that exist within an organisation and can also be resolved within the organisation, that is, they are within the control of the organisation. They typically include organisational culture, lack of resources, managers/owners attitude towards EcT, and the level of training of employees. The external barriers are those that lie outside the immediate control of the organisation. These include a lack of infrastructural facilities and lack of funds from banks and other governmental bodies. It has been suggested that in order for these to be overcome SMEs need to work collaboratively (Kapurubandara and Lawson 2006).

Perhaps one of the most surprising barriers to EcT adoption is the lack of knowledge of EcT solutions, of how they work, how they should be implemented and how they can benefit the SME sector (Arendt 2008; Asharfi and Murtaza 2008). Studies have shown that most managers of these firms, and some of the employees, could not select an EcT solution that would be appropriate for a given type of organisational problem (Apulu and Latham 2009; Abor and Quartey 2010). Hence, there is a need for both the managers and the employees to undergo some form of training in order to be aware of the vast changing nature of EcT and to find the most suitable solution for the organisation (Golding et al. 2008). However, many managers' fear that they will lose their employees to other organisations after investing in training (Arendt 2008).

The authors note the reduction in EcT related content of business management degree courses in several institutions in the UK over the last few years. As EcT continues to increase in importance and value to modern businesses, this trend is both surprising and of some considerable concern. If this trend continues then one could expect EcT skills in SMEs and even larger companies to become severely depleted and EcT adoption to become even more challenging.

The adoption of EcT in SMEs may also require considerable effort from its users who need to learn how to use the system and optimize its functionality to deliver greater value (Korpelainen and Kira 2010). Furthermore, highly experienced employees of a firm might become entrenched with a particular software or system and then find it difficult to adopt new technology (Golding et al. 2008). However, a rapid rate of adoption can be seen when an organisation notices that an innovation or new technology is meeting the needs of the customer (Alam et al. 2007).

Nguyen (2009) argues there are three main reasons for the slow rate of adoption and unsuccessful implementation of EcT in SMEs. The first is that the management of the firms are not clear about how and why their firms should adopt EcT in the first place (Modimogale and Kroeze 2011; Chibelushi and Costello 2009). Managers of most SMEs do not understand the relationship between EcT and the firm. For example, young managers tend to be fascinated by unique and fresh initiatives and are more willing to take more risks than older managers. An older manager may therefore be reluctant to take risks to try out new technology (Chuang et al. 2009). Finally, the ever-changing EcT environment requires regular update and training to remain abreast of developments and opportunities (Modimogale and Kroeze 2011; MacGregor and Vrazalic 2006).

The attitude of management in an organisation plays a crucial role in the adoption of EcT as in most cases in SMEs the managers are the owners (Apulu and Latham 2009). Support from management of an organisation, most especially top management, is essential for successful EcT implementation and adoption for SMEs (Matlay and Addis 2003). If the management is not disposed to its adoption and utilisation, then SMEs will not be able to use EcT (Akpan-Obong 2007). The manager/owner's weakness therefore becomes a limitation of the business (Modimogale and Kroeze 2011).

Secondly, managers' perceptions of security and reliability significantly inhibit EcT adoption. These range from the fear of computer viruses, to the theft of money during electronic transactions, and data theft (Arendt 2008). The perceived potential of hackers gaining access to people's information and the level of fraud is one of the major barriers to EcT adoption in Nigeria. The majority of people do not believe that their information is safe online. For this reason, individuals and SMEs might be reluctant to perform transactions online that require the exchange of personal information (Olusegun et al. 2006). As a result utilisation of EcT in B2C (business to consumer) may be low. The lack of trust in supply chains can be argued not to be the fault of the organisation since customers might not be interested in using the EcT solutions offered by the company. This can be for reasons that include the potential for data or money theft (Olusegun et al. 2006). Such developments may also require a restructuring of the entire logistics and supply chain system to better serve and retain the customers (Arendt 2008) and this may be the reason for a company to shun the idea of implementing EcT solutions.

Thirdly, most SMEs do not have the capability to expand their IT resources due to limited access to capital (Golding et al. 2008). This is a common factor that affects the adoption of EcT in SMEs (Arendt 2008; Mpofu and Watkins-Mathys

2011). Most SMEs in Nigeria do not have access to bank loans or funding to support the development of EcT in their businesses due to lack of adequate collateral (Olorunshola 2003; Olusegun et al. 2006). Also paying back loans that have high interest rates and high bank charges can be too much of a burden for the majority of SMEs to bear (Abor and Quartey 2010).

Poor infrastructure can also be a problem that affects the adoption of EcT. The lack of internet access is recognised as a barrier to the adoption of EcT in Nigerian SMEs. It cannot be claimed that Nigeria completely lacks the necessary infrastructure, but it can be argued that the infrastructure is in a poor condition (Achimugu et al. 2009; Oshikoya and Hussain 2007). The unstable nature of electricity supply in Nigeria is one of the factors affecting the adoption of EcT: E-commerce technologies work hand-in-hand with stable sources of electricity supply (Apulu and Latham 2009). In fact it can be argued to be the most discouraging factor of EcT adoption by SMEs in the country as a whole (Akpan-Obong 2007).

Setting up the required infrastructure is expensive and requires significant funding (Achimugu et al. 2009; Arikpo et al. 2009). Some individuals in the country have actually taken it upon themselves to acquire and set up the necessary infrastructure needed to run the organisation and to better serve their customers (Ashrafi and Murtaza 2008). For example, Mike Adenuga, the Chairman of Globacom, introduced a 9,800 km long submarine cable network across the United Kingdom, Spain, Portugal and 14 African countries in order to establish a dedicated link to the USA. This is the first initiative of its kind to be executed by an individual in Nigeria (Nkanga 2011).

2.5 Research Framework

The literature highlights the challenges that face SMEs when seeking to improve their performance in the supply chain through the use of EcT. On the other hand, the benefits of appropriate technologies can be significant. However, the perceived and actual barriers to implementation are numerous and not all of which lie within the sphere of control of the organisation. SMEs in developing economies may also face specific problems when attempting to coordinate their activities with other inexperienced organisations within the supply chain, and when national infrastructures are not supportive of chosen technologies.

The following hypotheses have been drawn from the themes identified within the literature and form the basis of this investigation:

Hypothesis 1: There is a positive relationship between EcT adoption and perceived relative advantage in SMEs.

Hypothesis 2: The adoption of EcT by Nigeria SMEs will be positively related to the perceived ease of using EcT.

Hypothesis 3: The adoption of EcT by Nigeria SMEs will be positively related to the size of the organisation.

Hypothesis 4: The adoption of EcT by Nigeria SMEs will be positively related to the industry of the organisation.

Hypothesis 5: The adoption of EcT by Nigeria SMEs will be dependent on the position of the organisation in the supply chain.

Hypothesis 6: The perceived ease of use will have positive effect on perceived usefulness of ICT to Nigeria SMEs.

2.6 Methodology

This study employed a self-administered questionnaire to explore the importance of supply chain management in SMEs in accordance with the themes identified in the literature review (Owolabi 2005). Survey research strategy is a widely accepted and common approach in business and management research (Saunders et al. 2007; Bryman and Bell 2011; Panneerselvam 2010). It is aimed at producing generalisations about a population by collecting information from samples. It is used for exploratory and descriptive research and is usually associated with the deductive approach (Thomas 2006; Saunders et al. 2009). Surveys are used as they allow for the collection of a large amount of data from a large population in a highly economical way (Bryman and Bell 2011).

The survey questionnaire was divided into three sections: Sect. 2.1 focused on collecting demographic information about the company. Section 2.2 explored with the use of EcT in the supply chain. Section 2.3 focused on the benefits and barriers of EcT adoption. Questions were answered through a 5-point Likert scale. Some questions include open-ended responses to elicit further detail and accommodate a wider range of responses.

A total of 300 questionnaires were distributed to managers of SMEs in Lagos, Nigeria. One hundred and eighty questionnaires were returned, of which 161 were complete, representing a response rate of 54 %. This sample size is considered adequate for the analysis and the response rate is similar to that of Apulu et al. (2011).

2.7 Analysis and Discussion

There is no single definition of an SME, however, the number of employees is usually used (Modimogale and Kroeze 2011). The Small and Medium Sized Development Agency of Nigeria (SMEDAN) defines a micro enterprise as a business employing less than 10 people and an annual turnover of less than 5 million naira (\$30,797), a small enterprise as a business with between 10 and 49 employees and annual turnover of 5–49 million naira (\$30,797–\$301,819), and a medium enterprise is defined as a business with between 50–199 people and an annual turnover of 50–499 million naira (\$307,979–\$3,073,636). Analysis of the survey data shows that 63 organisations (39.1 %) were micro enterprises



Fig. 2.1 Age of companies

employing less than 10 people, 72 organisations (44.7 %) are small enterprises, and 26 (26 %) are medium sized enterprises.

Figure 2.1 illustrates that 50 respondents (31.1 %) had been in existence for not more than 5 years, 51 respondents (31.7 %) fall within the range of 5–10 years, 23 respondents (14.3 %) fall within the range 11–15 years, while 16 respondents (9.9 %) fall within the range of 16–20 years and 21 respondents (13 %) fall within the range of more than 20 years.

This analysis suggests that SME organisations are a vibrant section of commerce in Nigeria. Small and micro-sized enterprises forming the majority of the sample surveyed. Encouragingly, around one third of those organisations have prospered for more than 10 years.

Thirty first organisations (19.3 %) were private limited companies, 16 organisations (9.9 %) were public limited companies, 27 organisations (16.8 %) were partnerships, 60 organisations (37.3 %) were sole proprietorships, and 26 (16.1 %) were family owned businesses.

A total of 113 organisations (70.2 %) identify themselves as belonging to tier 0, that is supplying directly to the consumer, 35 organisations (21.7 %) were reported as tier 1 and 13 organisations (8.1 %) were reported as tier 2. Figure 2.2 depicts the range of sectors that the survey sample operated in.

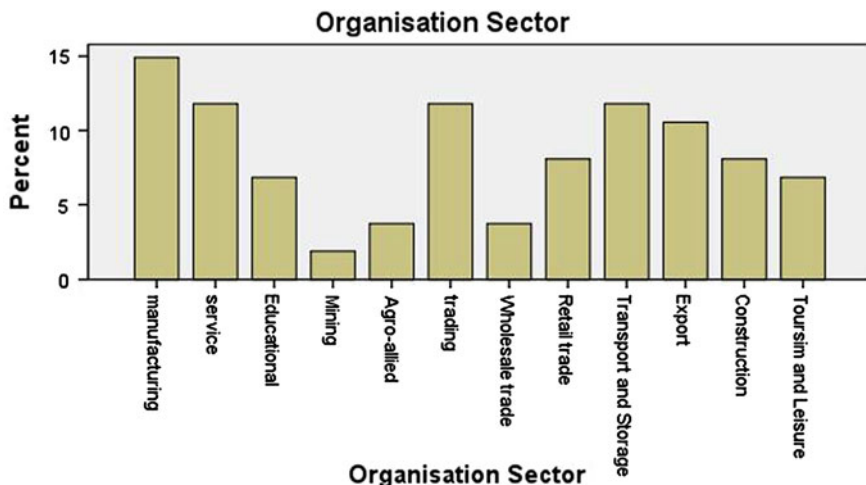


Fig. 2.2 Sectors of commerce

2.7.1 Overview of Hypotheses

An overview of the data analyses and the findings for each of the tested hypotheses is shown in Table 2.1.

Despite making an overall rejection of Hypothesis 1, factor reduction analysis showed that there were strong relationships between EcT adoption and the perceived relative advantages of competitive advantage, cost/time reduction, increased profit and global reach. Contrastingly there was little or no relationship between EcT adoption and the perceived relative advantages of improved marketing, information storage, communication, customer satisfaction and automation. It shows that there are several significant reasons for SMEs to adopt EcT. However it also suggests that Nigerian SMEs are not entirely aware of the benefits that EcT may bring to specific business functions and processes, or fail to consider the details of the ways in which EcT may be able to improve an organisation's efficiency and effectiveness. The SME owners/managers that took part in the survey were asked reasons why they have not adopted EcT solutions. 14 respondents said it was not applicable to their line of business, 12 respondents said it was not economical, 8 respondents said they were not trained to use EcT, 4 respondents said they were not aware of its usefulness while 3 respondents said they had not heard about it.

Perhaps unsurprisingly, Hypothesis 2 shows that there is a strong relationship between the perceived ease of use of EcT and its adoption. This is consistent with the vast corpus of literature that examines EcT adoption in a myriad of contexts. 65 % of the respondents identified the lack of electricity as one of the main factors limiting the utilisation and adoption of EcT and was a notable barrier to its ease of use.

Table 2.1 Summary of hypotheses

Hypotheses	Variables	Significance	Result
Hypothesis 1	EcT adoption and benefits of use	Pearson's correlation (0.069)	Rejected. However, competitive advantage, global reach, increase profit, reduce cost/save time all have a strong correlation with EcT adoption
Hypothesis 2	EcT adoption and perceived ease of use	Pearson's correlation (0.486)	Accepted
Hypothesis 3	EcT adoption and number of employees	Pearson's Chi Square (0.002)	Accepted
Hypothesis 4	EcT adoption and sector of the organisation	Pearson's Chi Square (0.184)	Rejected
Hypothesis 5	EcT adoption and position of company in the supply chain	Pearson's Chi Square (0.335)	Rejected
Hypothesis 6	Perceived ease of use and perceived usefulness	Pearson's correlation (0.547)	Accepted

There are unstable and limited power allocation networks in Nigeria, hence power shedding is a regular occurrence (Olatokun 2006).

For this study, in the context of a developing economy, it is encouraging to find that attitudes toward EcT adoption in SMEs are similar. Although requiring further investigation, along with the analysis of Hypothesis 1 it suggests that Nigerian SMEs' understanding of EcT is reasonably well developed. It is worth mentioning that most SME managers/owners had received EcT training privately (43.5 %) followed by managers/owners who had their training from friends (18 %) and from the government (17.4 %).

In accord with much of the literature Hypothesis 3 finds a strong relationship between the size of the company and the adoption of EcT. From our sample, of the respondents that were micro-scale enterprises, 74 % had adopted some form of EcT, while 94 % of small-scale enterprises and 92 % of medium-sized enterprises had adopted information technologies. Although there does not appear to be a linear relationship between size and adoption, the analysis does suggest that smaller firms find it particularly difficult to adopt EcT.

There is a perspective that believes older organisations (over 20 years old) may be more willing and able to adopt EcT solutions compared to new organisations (5–10 years old) as their financial positions become secure, their awareness of the market improves and their employees' skills increase. However, the study showed that new organisations (34 %) seem to have adopted EcT solution to a greater degree than the old ones (14.9 %). There may be several reasons for this, ranging from increased EcT awareness of younger managers to increasing competition between organisations as newer ones enter the market.

The sample that was surveyed encompassed a broad range of sectors of commerce (Fig. 2.2) but no relation was found between this and the adoption of EcT for Hypothesis 4. The manufacturing sector was found to have the highest figure of EcT adoption (17.0 %) followed by transport and storage (12.1 %) then trading (11.3 %).

Interestingly, no statistical relationship was found between the adoption of EcT and an organisation's position in the supply chain for Hypothesis 5. However, in the sample 97 % of tier 0 companies had adopted some form of EcT compared to 31 % of tier 1 suppliers and 13 % of tier 2 suppliers. This is compelling evidence that there is in fact some association between the adoption of EcT and the position of a company in a supply chain that is worthy of further investigation. Responses to open-ended questions indicated that tier 0 companies adopted and utilised EcT extensively for communication with end users.

The strong relationship found for Hypothesis 6, similar to that for Hypothesis 2, confirms much of the existing literature. The perceived ease of use of EcT solutions will have a positive effect on the usefulness of EcT to Nigerian SMEs. The poor service provided by Internet Service Providers (ISPs) was seen as a major concern by many respondents. This is characterized by slow internet speed due to low bandwidth and high subscription costs. Thus, ISPs need to enhance the quality of services they provide to their customers, especially regarding bandwidth, as this will assist SMEs to effectively utilise and adopt EcT solutions.

Table 2.2 Advantages and disadvantages of e-commerce for Nigerian SMEs

Advantages	Disadvantage/barriers
E-commerce aids business development in developing countries	Internal Perception of security and reliability
Improved business communication and co-ordination- facilitates globalisation	Internal SMEs resources: skills, awareness of benefits, culture
It helps reduce cost of business operation; transaction, procurement, and materials costs	Internal and External Data integrity and protection
Minimizes issues associated with logistics	External Infrastructure: power supply security, internet, funding
Reduces cost of production	
Easy online comparison	
Better customer service, quicker response	
Supports economic development	

Corruption was highlighted by 53 % of the respondents as one of the factors limiting the successful utilisation and adoption of EcT. Corruption in Africa is a problem of routine deviation from established standards and norms by public officials and parties with whom they interact (Ayobami 2011). Bribery, private gain and non-existent workers, also known as ‘ghost workers’, are some of the different types of corruption that are encountered. Corruption generally in Nigeria is a social problem that has attracted the interest of many scholars. However, corruption and its effect on e-commerce have experienced little attention. The lack of infrastructure and the high cost of equipment were also identified by many of the respondents as other factors affecting the adoption of EcT (Table 2.2).

The growth of e-commerce is held back by lack of public awareness on how to use the technologies. However, there has been a rapid growth in electronic cash transfer services such as Western Union, MoneyGram and Travelex in recent years. Electronic banking is one area of e-commerce that has proven successful in Nigeria. Virtually all banks in Nigeria offer online, real-time banking services. Moreover, banks that cannot offer these services are increasingly losing their customers are offered the flexibility of operating an account in any branch of their bank’s network. Even though the Nigeria government has taken progressive steps in recent years to aid online buying and selling many challenges still remain. Among these, corruption appears to be a widespread issue (Akan-Obong 2007; Olusegun et al. 2006).

2.8 Conclusion

SMEs are known to be the backbone of the economies in developed and developing countries. Nigeria in particular has advanced immensely through the numerous benefits that SMEs provide. Cost reduction, increased flexibility, error

reduction, faster response time and lower cost of labour are some of the benefits that EcT adoption offers. In spite of this, challenges still exist that inhibit effective integration.

There is a need for both managers and employees to undergo continual training in order to be aware of the vast changing nature of EcT and to find the most suitable solution for their organisations. The lack of security and reliability, trust, and access to capital are some of the factors responsible for the slow adoption of EcT within the SME sector in Nigeria.

This study also identified poor infrastructure to be a significant issue that affected the adoption of EcT and continues to affect the effective long-term utilisation of EcT solutions. In addition to this, corruption appears to be a key issue of debate and concern.

There would appear to be a need for both SMEs and government institutions to cooperate to address these pressing problems. Organisations ought to ensure the readiness of their employees for change that is brought about through EcT solutions. This should not just be restricted to their employees but should recognise the multiplicative effect of appropriate EcT adoption throughout the supply chain. Infrastructure development needs to take place to complement the development of SME-based commerce. The cost of these undertakings should be considered in light of the considerable importance of SMEs to the economy. Corruption is a perennial problem in some areas and does not seem to be an issue that can be simple to resolve. Nevertheless, ignoring the problem is unacceptable given its reported magnitude.

References

- Abor J, Quartey P (2010) Issues in SME development in Ghana and South Africa. *Int Res J Finan Econ* 39:218–228
- Achimugu P, Oluwagbemi O, Oluwaranti A, Afolabi B (2009) Adoption of information and communication technologies in developing countries: an impact analysis. *J Inf Technol Impact* 9(1):37–46
- Adekunle P, Tella A (2008) Nigeria SMEs participation in electronic economy: problems and the way forward. *J Internet Bank Commer* 12(3)
- Akhavan P, Jafari M (2008) Towards learning in SMEs: an empirical study in Iran. *Dev Learn Organ* 22(1):17–19
- Akpan-Obong P (2007) Information and communication technology in development: contextuality and promise. In: *Proceedings of the 9th international conference of social implication of computers in developing countries*, Sao Paulo, Brazil, pp 1–14
- Alam SS, Noor MM (2009) ICT Adoption in small and medium enterprise: an empirical evidence of service sector in Malaysia. *Int J of Bus and Man* 4(2):112–125
- Alam S, Khatibi A, Ahmad M, Ishmail H (2007) Factors affecting E-commerce adoption in the electronic manufacturing companies in Malaysia. *Int J Commer Manage* 17(1/2):125–139
- Al-Hudhaif S, Alkubeyyer A (2011) E-commerce adoption factors in Saudi Arabia. *Int J Bus Manage* 6(9):122–133
- Apulu I, Latham A (2009) Information and communication technology adoption: challenges for Nigerian SMEs. *TCM Acad J* 4(2):64–80

- Apulu I, Latham A (2011) Drivers for Information and communication technology adoption: a case study of Nigerian small and medium sized enterprises. *Int J of Bus and Man* 6:51–60
- Apulu I, Latham A, Moreton R (2011) Factors affecting the effective utilisation and adoption of sophisticated ICT solutions: case studies of SMEs in Lagos, Nigeria. *J Syst Inf Technol* 13(2):125–143
- Arendt L (2008) barriers to ICT adoption in SMEs: how to bridge the digital divide. *J Syst Inf Technol* 10(2):93–108
- Arikpo I, Osofisan A, Usoro A (2009) Bridging the digital divide: the Nigerian journey so far. *Int J Global Bus* 2(1):181–204
- Ashrafi R, Murtaza M (2008) Use and impact of ICT on SMEs in Oman. *Electron J Inf Syst Eval* 11(3):125–138. www.ejise.com. Accessed 1 Dec 2011
- Awa H, Eze S, Urieto J, Inyang B (2011) A major determinant of information technology (IT) adoption by SMEs in Nigeria. *J Syst Inf Technol* 13(2):144–162
- Ayobami O (2011) Corruption eradication in Nigeria: an appraisal. <http://www.webpages.uidaho.edu/~mbolin/ayobami.htm>. Accessed 3 July 2013
- Barba-Sanchez B, Martinez R, Jimenez-Zarco A (2007) Drivers, benefits and challenges of ICT adoption by small and medium sized enterprises (SMEs): a literature review. *Probl Perspect Manage* 5(1):103–114
- Bhagwat R, Sharma M (2007) Information system architecture: a framework for a cluster of small and medium sized enterprise (SMEs). *Prod Plann Control* 18(4):283–296
- Bryman A, Bell E (2011) *Business research methods*, 3rd edn. Oxford University Press, Oxford
- Chaffey D, White GRT (2010) *Business information management: improving performance using information systems*, 2nd edn. Pearson Education, UK
- Chibelushi C, Costello P (2009) Challenges facing W. Midlands ICT-oriented SMEs. *J Small Bus Enterp Dev* 16(2):210–239
- Christopher M (2011) *Logistics and supply chain management: creating value-adding networks*, 4th edn. Prentice Hall, Edinburgh
- Chuang T, Nakatani K, Zhou D (2009) an exploratory study of the extent of information technology adoption in SMEs: an application of upper echelon theory. *J Enterp Inf Manage* 22(1/2):183–196
- Cloete E, Courtney S, Fintz J (2002) Small businesses' acceptance and adoption of e-commerce in the western-cape province of South-Africa. *Electron J Inf Syst Dev Countries* 10(4):1–13
- Collins J, Worthington W, Reyes P, Romero M (2010) Knowledge management, supply chain technologies, and firm performance. *Manage Res Rev* 33(10):947–960
- Fasanghari M, Roudsari F, Chaharsooghi K (2008) Assessing the impact of information technology on supply chain management. *World Appl Sci J* 4(1):87–93
- Fawcett S, Magnan G, McCarter M (2008) Benefits, barriers and bridges to effective supply chain management. *Supply chain Manage Int J* 13(1):35–48
- Ghobakhloo D, Arias-Aranda D, Benitez-Amado J (2011) Adoption of E-commerce applications in SMEs. *Ind Manage Data* 11(8):1238–1269
- Golding P, Donaldson O, Tennant V, Black K (2008) An analysis of factors affecting the adoption of ICT by MSMEs in rural and urban Jamaica. <http://is2.lse.ac.uk/asp/aspecis/20080109.pdf>. Accessed 28 Jan 2014
- Harindranath G, Dyerson R, Barnes D (2008) ICT adoption and use in UK SMEs: a Failure of Initiatives? *Electron J Inf Syst Eval* 11(2):91–96
- Harrison A, Van Hoek R (2011) *Logistics management and strategy: competing through the supply chain*, 4th edn. Prentice Hall, England
- Hong P, Jeong J (2006) Supply chain management practices of SMEs: from a business growth perspective. *J Enterp Inf Manage* 19(3):292–302
- Hsin C, Anastasia P (2008) Adoption of supply chain management technologies by small and medium enterprises in the manufacturing sector. <http://is2.lse.ac.uk/asp/aspecis/20080079.pdf>. Accessed 13 April 2012
- Ihua UB (2009) SMEs key failure-factors: a comparison between the United Kingdom and Nigeria. *J Soc Sci* 18(3):199–207

- Kapurubandara M, Lawson R (2006) Barriers to Adopting ICT and e-commerce with SMEs in developing countries: an exploratory study in Sri Lanka. <http://www.esmaeilkhoul.com/articles/9-SriLanka-2006.pdf>. Accessed 13 April 2012
- Koh L, Demirbag M, Bayraktar E, Tatoglu E, Zaim S (2007) The impact of supply chain management practices on performance of SMEs. *Ind Manage Data* 107(1):103–124
- Korpelainen E, Kira M (2010) Employees choices in learning how to use information and communication technology systems at work: strategies and approaches. *Int J Train Dev* 14(1):32–53
- Li X, Chung C, Goldsby T, Holsapple W (2008) A unified model of supply chain agility: the work-design perspective. *Int J Logist Manage* 19(3):408–435
- MacGregor RC, Vrazalic L (2006) The effect of small business clusters in prioritising barriers to E-commerce adoption in regional SMEs. *J New Bus Ideas Trends* 4(1):24–44
- Matlay H, Addis M (2003) Adoption of ICT and e-commerce in small businesses: an HEI-based consultancy perspective. *J of Small Bus and Ent Dev* 10(3):321–335
- Modimogale L, Kroeze J (2011) The role of ICT within small and medium enterprises in Gauteng. *Commun of the IBIMA* 1(13)
- Mpofu K, Watkins-Mathys L (2011) Understanding ICT adoption in the small firm sector in Southern Africa. *J Syst Inf Technol* 13(2):179–199
- Molla A, Licker PS (2005) E-Commerce adoption in developing countries: a model and instrument. *Information & Management*, 42(6):877–899
- Nath T, Standing C (2010) Drivers of information technology use in the supply chain. *J Syst Inf Technol* 12(1):70–84
- Nguyen T (2009) Information technology adoption in SMEs: an integrated framework. *Int J Entrepreneurial Behav Res* 15(2):162–186
- Nkanga E (2011) Glo 1 submarine cable launched in Ghana, ThisDayLive. <http://www.thisdaylive.com/articles/glo-1-submarine-cable-launched-in-ghana/89481/>. Accessed 14 Dec 2011
- OECD report 2008. <http://www.oecd.org/dev/emea/40573969.pdf>. Accessed 31 Jan 2014
- Olatokun, WM (2006) National information technology policy in Nigeria: prospects, challenges and framework for implementation. *Africa J of Lib, Arch and Info Science* 16(1):9–18
- Olorunshola JB (2003) Problems and prospects of small and medium-scale industries in Nigeria: seminar on small and medium industries equity investment scheme. CBN Training Centre, Lagos
- Olusegun F, Gabriel A, Sushil S, Zhang J (2006) factors affecting the adoption of E-commerce: a study in Nigeria. *J Appl Sci* 6(10):2224–2230
- Oluwatayo I (2010) Information and communication technologies as drivers of growth experience from selected small-scale business in rural southwest Nigeria. <http://www.nai.uu.se/ecas-4/panels/141-156/panel-150/Isaac-Oluwatayo-Full-paper.pdf>. Accessed 18 Dec 2011
- Ongori H, Migiro S (2010) Information and communication technologies adoption in SMEs: literature review. *J Chin Entrepreneurship* 2(1):93–104
- Oshikoya T, Hussain N (2007) Information technology and the challenge of economic development in Africa. Development Information Service Division (DISD): University of Copenhagen, Denmark and International Books, Addis Ababa
- Owolabi, K. (2005), Small Business Clinic, Businessday. Businessday Media Ltd, Lagos
- Panneerselvam R (2010) Research Methodology. PHI Learning, New Delhi
- Saunders M, Lewis P, Thornill A (2007) Research methods for business students, 4th edn. Prentice Hall, England
- Saunders M, Lewis P, Thornill A (2009) Research methods for business students, 5th edn. England, Prentice Hall
- Shiels H, McIvor R, O'Reilly D (2003) Understanding the implications of ICT adoption: insights from SMEs. *Logist Inf Manage* 16(5):312–326
- Singh R (2011) Developing the framework for coordination in supply chain for SMEs. *Bus Process Manage J* 17(4):619–638

- Stavoulaki E, Davis E (2010) Aligning products with supply chain processes and strategy. *Int J Logist Manage* 21(1):127–151
- Tan K, Chong S, Lin B, Eze U (2010) Internet-based ICT adoption among SMEs. *J Enterp Inf Manage* 23(1):27–55
- Thakkar J, Kanda A, Deshmukh SG (2009) Supply chain management for SMEs: a research introduction. *Manage Res News* 32(10):970–993
- Thomas A (2006) Research concept for management studies. Routledge USA. http://books.google.co.uk/books?id=sY0bd6n_nsUC&printsec=copyright&source=gbs_pub_info_r&safe=active#v=onepage&q&f=false. Accessed 27 Feb 2012
- Toyin O, Damilola O (2012) Abandonment factors affecting e-commerce transactions in Nigeria. *Int J Comput Appl* 46(23):41–47
- Uzoka F, Shemi A, Seleka G (2007) Behavioral influences on e-commerce adoption in a developing country context. *Electron J Inf Syst Dev Countries* 31(4):1–15

E-commerce Platform Acceptance

Suppliers, Retailers, and Consumers

Lacka, E.; Chan, H.; Yip, N. (Eds.)

2014, VIII, 189 p. 16 illus., 10 illus. in color., Hardcover

ISBN: 978-3-319-06120-7