The Extent of E-Commerce Adoption among Small and Medium Enterprises in Nairobi, Kenya

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Abstract

The study set out to determine the extent of e-commerce adoption in small and medium enterprises in Nairobi, Kenya. The target population for the study was small and medium enterprises with official premises within the eight (8) divisions in Nairobi County. The study is a descriptive survey; a sample size of 176 firms was used. Out of the 176 small and medium enterprises targeted, 163 firms responded translating to 93% response rate. The study was successful in determining the extent of e-commerce adoption in SMEs in Nairobi, Kenya. While e-commerce was found to provide strategic value to adopters, it was noted that a good number of SMEs in Nairobi had not embraced the technology. It was established that e-commerce is not widespread. 43% of all the firms surveyed had no functioning websites. 31% of the firms had static websites, while 22% of the firms had active websites that allowed interactive communication with customers. The study findings also indicate that over 80% of all firms surveyed did not have a specific e-commerce strategy.

Keywords— e-commerce, SMEs Nairobi-Kenya, adoption, extent, digital goods

Introduction

The concept of e-commerce has been broadly written and defined in various ways (Mutua, Oteyo, & Njeru, 2013). E-commerce stands for electronic commerce which deals with the facilitation of transactions and selling of products and services online, that is, via the internet or any other telecommunications network (Jelassi & Enders, 2008). This involves the electronic trading of physical and digital goods, quite often encompassing all the trading steps such as online marketing, online ordering, e-payment for digital goods, online distribution and after-sales support activities.

E-commerce is often thought simply to refer to buying and selling using the internet; people immediately think of consumer retail purchases from companies such as Amazon or eBay. But in actual sense e-commerce involves much more than electronically mediated financial transactions between organizations and customers. It should be considered as all electronically mediated transactions between organization and any third-party it deals with. By this definition, non-financial transactions such as customer requests for further information would also be considered to be part of e-commerce (Chaffey, 2009).

There is a range of different perspectives for e-commerce (Kalakota & Whinston, 1997), namely communications perspective, business process perspective through the application of technology towards the automation of business transactions and workflows, service perspective by enabling cost cutting at the same time increasing the speed and quality of service delivery and online perspective which is the buying and selling of products and information via the Internet.

Types of e-Commerce

There are a variety of different types of e-commerce and many different ways to characterize these types. There are five major types of e-commerce based on the nature of the market relationship i.e. who is selling to whom (Laudon & Traver, 2009). The exceptions are peer-to-peer (P2P) and Mobile commerce (M-commerce), which are technology-based distinctions.

Business-to-Business (B2B) e-commerce, in which businesses focus on selling to other businesses, is the largest form of e-commerce. The other types include Business-to-Consumer (B2C) e-commerce, in which online businesses attempt to reach individual consumers. Consumer-to-Consumer (C2C) e-commerce is another type that provides a way for consumers to sell to each other, with the help of an online market maker such as the auction site eBay. P2P e-commerce enables internet users to share files and computer resources directly without having to go through a central Web Server. M-commerce involves the use of wireless networks, handheld devices, personal computers and wireless digital devices to enable transactions on the Web.

Methodology

The study involved indentifying the study population, determining the sampling design, data collection and analysis. A cross-sectional survey was adopted for this study. This meant that the sample measurements were carried out at a single point in time. Descriptive survey is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals (Orodho, 2003). The rationale for a descriptive research was description of the state of affairs as it exists. Descriptive studies are not only restricted to fact finding, but may often result in the formulation of important principles of knowledge and solution to significant problems (Kerlinger, 1973).

a. Population of Study

The target population for the study was small and medium enterprises (SMEs) with official premises within the eight (8) divisions in Nairobi County. By definition, small enterprises have between 10 and 50 employees while Medium enterprises have 50 to 100 employees. There are approximately 98078 micro, small and medium enterprises in Nairobi and approximately 1.6% of these enterprises employ at least ten workers translating to 1,569 firms (Kagwaini, 2008).

b. Sampling Design

The study employed probability sampling. A sample size of 176 firms was used based on recommendation by researchers that 10%-20% of population size is a sufficient sample size (Cooper & Schindler, 2008). Thus, using simple random sampling, 22 firms were drawn from each of the eight administrative divisions of Nairobi namely Central, Dagoretti, Embakasi, Kasarani, Kibera, Makadara, Pumwani and Westlands.

This sampling design greatly enhanced representativeness of the sample as data was collected from a wide geographical area to ensure variability in characteristics of firms and the environment in which they operated. In addition, each firm was given an equal chance to be selected. Hence the unbiased results were deemed suitable for generalization to the larger population.

c. Data Collection

Primary data was collected using structured questionnaire. The implementation of e-commerce technologies is a huge investment for firms, it must involve management and for this reason, questionnaires were directed to either a business manager, IT manager or their representatives for each target firm. The questionnaires were administered through email and 'drop-and-pick-later' method.

The questionnaire was divided into three sections. The objective of the first section was to provide a classification of the businesses and help collect other general information deemed relevant for the study. The second section sought to establish the extent of e-commerce adoption and factors that influence e-commerce adoption while the third section of the questionnaire was useful in determining the strategic value of e-commerce adoption. This section thus contained detailed questions which point to the indicators of strategic value of e-commerce adoption. Overall, the questions were asked to solicit responses with regard to drivers, benefits, market place, business processes, products, services and other relevant factors of e-commerce adoption.

d. Data Analysis

Since some of the issues addressed in this study involved perception, descriptive statistics was used for data analysis. The descriptive techniques were chosen for this study because they involve measurement, classification, analysis, comparison and interpretation of data with the benefit of describing the state of affairs as it exists (Kombo & Tromp, 2006).

The data collected from this study was edited for completeness and consistency, coded and keyed into statistical tools for analysis. The data was then analyzed using statistical techniques of analysis such as the mean, frequencies, and percentages to determine the proportion of respondents for each of the strategic value indicators. To determine the relative importance of the various strategic value dimensions, the study used mean scores and standard deviations. The findings were presented through summarized figures and tables.

Results and Discussion

a. Type of Businesses

The study begun by looking at the type of business that the firms were involved in. Fig. 1 indicates that 50% of all firms were in trading, meaning that a large proportion of small and medium enterprises were involved in the buying and selling of commodities; 19% and 31% respectively were involved in manufacturing and services.

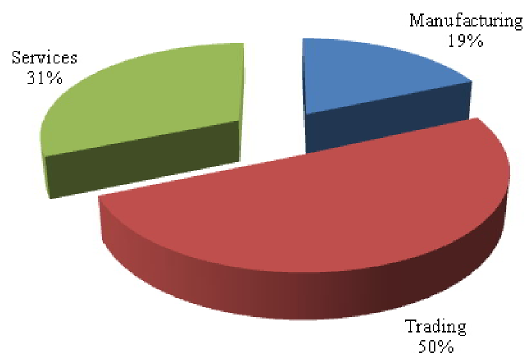

Fig.1: Type of businesses

b. Geographical Coverage

The study then looked at the organizations' dispersion as depicted by geographical coverage. This was useful in identifying the markets served by the firms (whether local, national, regional or international) as justification for investment in e-commerce technologies. Fig. 2 indicates that majority of the firms surveyed (60%) are local and serve Nairobi market, 21% have a presence in other towns in Kenya, and 13% have a niche in the East Africa regional market, while 6% serve international markets.

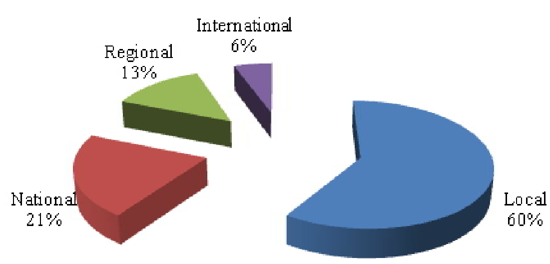

Fig. 2: Geographic coverage

c. Internet Connection

The study sought to determine the use of internet connection by firms. Table 1 shows the various uses of internet connection by the respective firms. E-mail is the most common use of existing internet connection followed by browsing and research.

Table 1: Use of internet connection

Use	Frequency
E-mail	136
Access internet (browse)	125
Information / research	105
Buy online	32
E-banking	23
Sell online	7

Table 2 summarizes the duration of internet connection for the respective firms. The data reveals that in excess of 79% of all connected firms had had the connection for a period of four years or more.

Table 2: Duration of internet connection

Duration (Years)	Frequency	Percent
Below 1 Year	4	2.70
1 - 3 years	27	18.24
4 - 6 years	52	35.14
7 - 9 years	25	16.89
Over 10 years	40	27.03
TOTAL	148	100.00

d. Extent of e-Commerce Adoption

Data was collected to determine the extent of e-commerce adoption in SMEs in Nairobi. Out of the original 163 respondent firms, only 93 firms exhibited some degree of e-commerce adoption (Fig. 1). This group formed the basis for the determination of the extent of e-commerce adoption. Despite the perceived business value of e-commerce adoption as summarized in Table 3, the study found out that e-commerce was not widespread.

Table 3: Perceived business value of e-commerce adoption

S/No.	Description	Frequency	Ranking
1	Improved marketing	55	1
2	Improved communication	49	3
3	Access to global market	21	12
4	Support sales process	28	10
5	Better customer service	53	2
6	Enhance competition	39	7
7	New business opportunities	47	4
8	Increase business efficiency	40	6
9	cost reduction	44	5
10	New product development	38	9
11	Improved product delivery	39	8
12	Linkages with business partners	28	11

Improved marketing is perceived to be the most important business value of e-commerce among non-adopters, followed by better customer service and improved communication respectively. The other perceived benefits are new business opportunities, cost reduction and efficiency. Competition, product delivery, new product development, sales support, linkages and access to global markets as additional perceived benefits of e-commerce adoption among non-adopters.

More recent research suggests that SMEs have been relatively slow to adopt e-commerce. Consequently, large firms are most dominant and more pervasive than small and medium sized firms as far as e-commerce is concerned (Daniel & Grimshaw, 2002). Also there is limited usage of internet technologies by medium sized firms (Arnott & Bridgewater, 2002). The authors tested the level by which small and medium enterprises are using the internet and they found that the majority of the firms were using the internet for information provision rather than interactive, relation-building or transactional facilities. They also found that smaller firms were using significantly fewer internet tools than their larger counterparts as shown in Fig. 3.

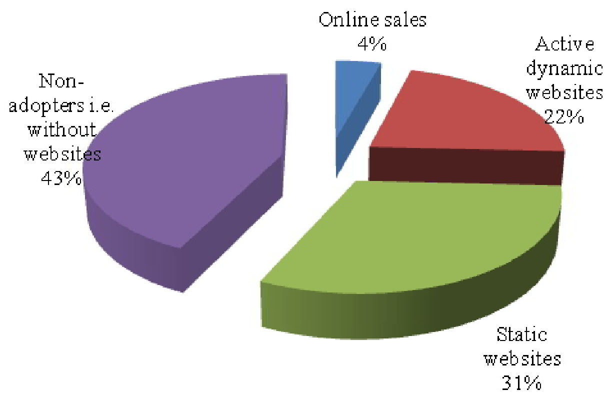

Fig. 3: Categories of e-commerce adopters

The organizational context can motivate or inhibit the adoption of e-commerce. The perception of management towards the benefits of e-commerce is an overriding factor in its adoption (MacGregor, Waugh, & Bunker, 1996). When looking at inhibitors to e-commerce in SMEs, the ignorance about e-commerce benefits inhibits its adoption (Jones, Beynon-Davis, & Muir, 2003). Researchers agree with this position on e-commerce and the competitiveness of small enterprises in Melbourne, stating that knowledge and awareness about the benefits of e-commerce motivates small businesses to adopt increasingly sophisticated e-commerce solutions (Castleman & Chin, 2002). Perceived complexity plays a role in the motivation or inhibition of e-commerce adoption by small and medium enterprises. Complexity is also a major inhibitor of the adoption of e-commerce (MacGregor *et al.*, 1996). Conversely, research shows a strong link between management attitudes towards e-commerce and the level of e-commerce adoption. The characteristics of senior management play an important part in the level of e-commerce adoption (Al-Qirim, 2003). The involvement and interest of senior management in e-commerce initiatives would lead to the deployment of additional resources devoted to e-commerce implementation (Al-Qirim, 2003).

Issues considered by SMES to be strategically important have been assessed (Quayle, 2002). Issues of marketing, leadership and waste reduction have been given highest priority, while supplier development, financial management, time to market and supply chain management have a medium priority. Perhaps unsurprisingly, the lowest priority was given to technology, research and development and customer management – all closely related to e-commerce. The alignment of e-commerce with the organization's strategy and processes needs to be present for an organization to adopt e-commerce. Small businesses reported that the adoption of an e-commerce solution was inhibited when not aligned with the organization's strategy and processes (Love, Irani, Li, Cheng, & Tse, 2001). The e-commerce solution has to be applicable to the organization to motivate adoption (Jones *et al.*, 2003), hence the need for alignment between e-commerce and the strategic context of the firm.

In further research, e-commerce adoption by several hundred SMEs was analyzed and found that fewer than 15% had a formal documented e-commerce strategy which is a limiting factor in adoption (Meckel, Walters, Greenwood, & Baugh, 2004a). It is not just knowledge about e-commerce, but that it is also important for SMEs to gain knowledge about how e-commerce affects the firm and its environment (Jones *et al.*, 2003). Over-reliance on third parties to provide knowledge and expertise would make redundant the need to acquire knowledge, with the firm's learning and strategy development processes being hijacked by external parties (Jones *et al.*, 2003).
There is pressure for SMEs to conform to industry standards or to a competitor's level of technology.

A majority of SMEs would decide to implement e-commerce if the level of adoption in the industry was high enough (Castleman & Chin, 2002). E-commerce adopters do so to keep up with the times and with shifts in industry practices (Castleman & Chin, 2002). This is consistent with the theory of critical mass, which states that adoption in an industry would be self sustaining once a certain level of adoption is reached (Markus, 1987). Adoption would take place in the organization if a high level of adoption occurred in the industry (Castleman & Chin, 2002). Another reason to adopt e-commerce is for SMEs to gain a strategic edge over competitors. Being in a strategic alliance affected the barriers to adopting e-commerce due to the fact that a strategic alliance would provide the organization with more technical and business knowledge about e-commerce (MacGregor *et al.*, 1996). A useful guide to risks and rewards of e-commerce for small and medium enterprises produced by Computer Weekly (King, 2004) suggests that the level of risk and reward can be accessed through a combination of four factors namely revenue, reputation, strategic importance and regulatory compliance.

e. Role of strategy in e-Commerce adoption

The study findings also indicate that over 80% of all firms surveyed did not have a specific e-commerce strategy in place which explains the low levels of adoption since businesses lack a formal plan to guide e-commerce development. This finding agrees with earlier studies. According to (Doherty, Ellis-Chadwick, & Hart, 2003), companies that do not have a formally defined and coherent e-commerce strategy are less likely to use higher levels of internet services. In further research, researchers (Meckel, Walters, Greenwood, & Baugh, 2004b) analyzed e-commerce adoption by several hundred SMEs and found that fewer than 15% had formal, documented e-commerce strategies which is a limiting factor in adoption.

Although the internet is a unique marketplace, the same principles of strategy and business apply. Successful e-commerce strategies involve using the internet to leverage and strengthen existing business (rather than destroy existing business), and to use the internet to provide products and services that competitors cannot copy in the short-term and that means developing unique products, proprietary content, distinguishing processes (like Amazon's one-click shopping concept), and personalized or customized services and products (Porter, 2001). Adopting a strategy of cost competition means a business has discovered some unique set of business processes or resources that other firms cannot obtain in the marketplace. E-commerce offers some new ways to compete on cost. Firms can lower the cost of order entry by having a single order entry system worldwide; and leverage richness, interactivity, and personalization by creating customer profiles online and treating each individual customer differently without the use of an expensive sales force that performed these functions in the past. The firms can also leverage the information density of the web by providing customers with detailed information on products, without maintaining expensive catalogs (Laudon & Traver, 2009).

There are further two other generic business strategies; scope and focus (Laudon & Traver, 2009). A scope strategy is a strategy to compete in all markets around the globe, rather than merely in local, regional, or national markets. The internet's global reach, universal standards, and ubiquity can certainly be leveraged to assist businesses attain a global presence and become global competitors. On the other hand, a focus strategy is a strategy to compete within a narrow market or product segment. This is a specialization strategy with the goal of becoming the premier provider in a narrow market. E-commerce offers capabilities for a focus strategy. For example firms can leverage the web's rich interactive features to create highly focused messages to different market segments; the information intensity of the web makes it possible to focus e-mail and other marketing campaigns on small market segments; personalization and related customization means the same products can be customized and personalized to fulfill the very focused needs of specific market segments and consumers.

Conclusion and recommendations

The study was successful in determining the extent of e-commerce adoption in SMEs in Nairobi, Kenya. Despite the perceived business value of e-commerce adoption, it was found that e-commerce was not widespread. Only 22% of the firms had active websites that allowed interactive communication with customers.

On the other hand, the study established several factors that influence e-commerce adoption in the SME sector. The most important factors were the perceived cost of implementing e-commerce technologies, lack of awareness with regard to e-commerce, and concern for online security.

In addition, the study established that e-commerce is a critical part of business strategy for most adopters as it provides an advantage in new business opportunities, customer service, cost reduction, efficiency, and new product development, access to international markets, marketing and communications.

Furthermore, while some SMEs have not adopted e-commerce, the study also established that generally there is a positive perception of the business value of e-commerce.

The study further predicts that a meaningful impact on the industry structure is to be expected if the level of adoption in the industry attains the critical mass threshold. Firms should strive to achieve this critical threshold. The government/policy makers should make polices that are enterprise friendly by reducing costs of trading using e-commerce.

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