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Evaluation of Current Technology Enabling E-Commerce in Zimbabwe

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Abstract: *The growth of the internet as a viable business vehicle for conducting business transactions is one of the phenomena of modern information technology and has already had a significant impact on the business community, providing new methods of conducting business on a global basis (Jutla et al, 1999). E-commerce adds to the transparency and convinience of doing business and creates a level playing field. This study sought to analyse current technology enabling e-commerce. The study described and explained the diverse types of e-commerce technologies used in Zimbabwe. The study also came up with most common barriers and benefits of using e-commerce technology as well as the usage level of these technologies in Zimbabwe. The world wide web was discovered to be the mostly used e-commerce technology in Zimbabwe.The study recommended companies to adopt the current technology enabling e-commerce so that they can be globally competitive.*
Keywords: *barriers, benefits, e-commerce, technology, usage level*

I. Introduction

The term e-commerce was initially conceived to give a description of the process of doing business transactions electronically using technology from Electronic Data Interchange (EDI) and Electronic Funds Transfers (EFTs). These technologies first appeared in the late 1970s. They enabled the exchange of information and the execution of electronic transactions between businesses in the form of electronic purchase orders and invoices. EDI and EFT were the enabling technologies that laid a foundation for e-commerce. Throughout the 1980s, the rise of credit cards, Automated Teller Machines (ATMs) and telephone banking was the next step to e-commerce evolution.

II. Background Of The Study

Electronic commerce allows businesses and customers to purchase as well as sell goods/services; exchange information on business dealings online or indulge in any other commercial transaction over the internet. The internet development as a feasible vehicle for conducting these business transactions is one of the wonders of modern information technology. This has already had a noteworthy impact on the business community as it provides new means of conducting business globally (Jutla et al, 1999). The transparency and suitability of conducting businesses has been added by e-commerce. E-commerce has also created a level playing field for businesses. Customers can now easily get wide-ranging and detailed product information and nature of services at their fingertips. This enables them to embark on a real time study of comparing prices before the final purchase of the product/service. E-commerce is conducted in several ways which include internet marketing, Online Transaction Processing (OLTP), Electronic Data Interchange (EDI), Electronic Fund Transfer (EFT), inventory management systems, automated data collection systems, the World Wide Web(www), instant messaging and transaction Processing System (TPS) .

In Zimbabwe, several technologies are used for e-commerce. Dube et al (2009) indicated EFTs, telephone banking, internet banking as some of the e-commerce enabling technologies used in Zimbabwe. This study will come up with the exact e-commerce technologies used in Zimbabwe. Some of the Zimbabwean people or businesses use the e-commerce technologies for different purposes whilst others do not use them at all

III. Problem Statement

Technology has become the order of the day and many developed countries are using e-commerce technologies to make conducting of businesses and transactions easier. Latest developments in technology have not spared Zimbabwe on e-commerce waves. This paper sought to find out if the technology enabling e-commerce is effectively and efficiently used in a developing country like Zimbabwe. The paper specifically looked at the e-commerce technologies used in Zimbabwe, the usage level of these technologies, the hindrances to using these e-commerce technologies as well as the perceptions of Zimbabweans on the e-commerce technologies in Zimbabwe since Zimbabwe seems to be lagging behind in terms of technology.

IV. Significance Of The Study

The study is important because it will help the researcher and other interested individuals in knowing about the technologies enabling e-commerce in Zimbabwe. The study will also bring about information on the barriers of using e-commerce technologies in Zimbabwe as well as what the Zimbabweans perceptions are concerning these e-commerce technologies. This study will also bring light to the researcher and other interested parties on the usage level of e-commerce technologies in Zimbabwe. Almost everyone will benefit from this study especially those pursuing their studies in Information Technology.

V. Research Objectives

This study aimed at fulfilling the following objectives:

- To be acquainted with the e-commerce technologies used in Zimbabwe
- To determine the usage level of these e-commerce technologies
- To identify the barriers to usage of the e-commerce technologies
- To explain the Zimbabweans' perceptions on the benefits of technology enabling e-commerce

VI. Research Questions

- Which e-commerce technologies are used in Zimbabwe?
- What is the usage level of these e-commerce technologies?
- Which are the most common barriers to usage of e-commerce technologies?
- What are the perceptions of Zimbabweans on benefits brought about by using e-commerce technologies?

VII. Literature Review

7.1 Definition of e-commerce

E-commerce can be defined as buying and selling of goods and services as well as business communication and transactions over the networked computers and separate computers linked to the world wide web (Key IT Solutions, 2005). According to OECD Secretariat (2001, p. 3) e-commerce is "any method of using electronic communications and computer technology to conduct business…"

7.2 E-commerce enabling technologies

7.2.1 Electronic Fund Transfer (EFT)

According to Sienkiewicz (2002, p. 2), EFT refers to the "application of computer and telecommunication technology in making and processing payments". Account holders can transfer funds from an account electronically on accounts at the same bank or at different financial institutions.

7.2.2 Electronic data Interchange (EDI)

This is the electronic communication of business transactions such as orders, confirmations and invoices between organisations (Kantor& Burrows, 1996). This saves time as well as money as transactions are transmitted from information system to another through telecommunications networks. Use of EDI eliminates paper handling and printing at one end while inputting data at the other. The OECD Secretariat (2001) indicated how EDI has enabled big organisations such as car manufacturers to place orders as well as manage inventories by sending electronic messages. Wind et al (2000) noted that EDI is one of the technology enabling e-commerce that is understood by a few organisations.

7.2.3 Online Transaction Processing (OLTP)

BusinessDictionary.com explained OLTP as a computer system that processes time-sensitive data and transaction-related data immediately at the same time keeping this data current. An Automated Teller Machine is an example of OLTP. According to Dube et al (2009), ATMs were the first e-commerce technologies into Zimbabwe introduced by Standard Chartered Bank and CABS in the early 1990s. Using this technology becomes a problem when the database becomes unavailable due to data corruption or systems failure as this might require offline maintenance which additionally affects cost-benefit analysis of organisations.

7.2.4 Transaction Processing System (TPS)

Janssen (n.d) of Techopedia described a TPS as "an information processing system for business transactions involving the collection, modification and retrieval of all transaction data." The TPS synchronises the warehousing and distribution of an item, the credit and bank transactions from the customers' payment accounts and the business' management of stock, sales, profits and payroll. This is helpful for customers to easily buy goods and services.

7.2.5 Instant Messaging (IM)

This is a system whereby electronic typed messages are exchanged through the internet using a shared application software on a mobile device or computer.

7.3 Barriers to e-commerce enabling technology usage

Mupemhi et al (2011)indicated that e-commerce has offered quite a number of business opportunities as well as improving business performance but there are hindrances to using e-commerce enabling technologies like high costs, legislation, fear of technological change, lack of sufficient supporting infrastructure and shortage of appropriate skills. According to Zanamwe et al (2012), some of the barriers to using technology enabling e-commerce include lack of resources, knowledge, skills, level of employees, security concerns, cost and complexity.

7.4 Benefits to using e-commerce enabling technology

Duncombe and Heek(2005) stated cost reduction, market benefits and other competitive benefits as some of the benefits brought about by the usage of technology enabling e-commerce. Makwembere (2005) pointed out how dollarization has brought change on how people do businesses through the use of e-commerce technology like mobile money transfers services. Mobile companies like Econet now allow their customers to buy airtime, pay bills, transfer money through mobile phones as well as pay for goods and services electronically. These mobile companies have also partnered with banks which makes life for Zimbabweans easier. Banks are now giving top priority toe-commerce in the strategies of their businesses which has led to a launch of many debit cards which in turn has increased internet banking.

VIII. Methodology

There is insufficient research in this area of study, particularly in the context of a developing country like Zimbabwe, a descriptive research design was considered the most appropriate approach.

The questionnaires were used to gather information from different organisations. The questions in the questionnaire included those that asked about the e-commerce enabling technologies used, benefits, efficiency and effectiveness of these technologies to e-commerce usage. The respondents were asked to rank and comment on different questions. This was a way of determining the weight or importance of each question towards evaluating the e-commerce enabling technology in Zimbabwe. The questionnaires included a combination of both structured and semi-structured questions.

The questionnaire was validated by testing it with a sample of three companies. The questionnaires were distributed to any one of the following; IT managers, marketing managers, accountants and finance managers of companies who were randomly selected to evaluate technology enabling e-commerce in their organisations.

8.1 Population and sampling

The data was gathered from manufacturing, retailing and service providing companies in Harare, Bulawayo and Gweru. 15 manufacturing, 15 retailing and 20 service providing companies were used as samples. This makes a total of 50 companies used for the study. A total of 50 questionnaires were distributed to the sample companies.

IX. Results, Analysis Of Results And Discussion Of Results

A total of 41 questionnaires were considered valid for data analysis because 5 of the questionnaires were not returned, 3 questionnaires were incomplete and 1 questionnaire was not completed.

9.1 Technology used for e-commerce

In an attempt to establish the technology used by the sample, respondents were asked to select the type of technology enabling e-commerce they used in their companies.

Table 1: Technology used for e-commerce

Technology used	frequency	Percentage
Electronic Data Interchange (EDI)	16	39.02
Electronic Fund Transfer (EFT)	22	53.7
World wide web (www)	35	85.4
Online Transaction Processing (OLTP)	26	63.4
Transaction Processing System (TPS)	19	46.3
Instant Messaging (IM)	31	75.6
Other	20	48.8

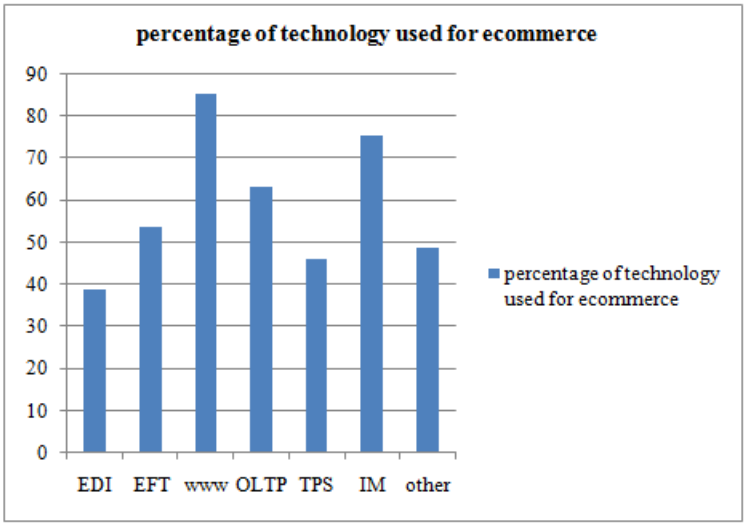

Figure 1: Technology used for e-commerce

Fig. 1 shows that at each organisation is using e-commerce technology as evidenced by their usage of at least one form of technology that was presented to them in the questionnaire. Research findings reveal that most respondents use the World Wide Web with 85.4% response rate. The reason for this is that they use it for e-mailing, advertising, marketing and for web enabled social networks like Skype which they use for communication with suppliers of raw materials. This supports a study by Sastre (2007) who indicated that most companies use the internet for buying goods and services. However, results show that EDI is the least used e-commerce technology with response rate of 39.02%. Instant Messaging with response rate of 75.6% is the second highest used technology for e-commerce in Zimbabwe.

9.2 E-commerce technologies usage level

Respondents were also requested to rate the e-commerce technologies usage in their companies on a three point Likert scale ranging from 1 (low) to 3 (high).

Table 2: E-commerce technologies usage level

rank	Frequency	Percentage	Cumulative percentage
Low	29	70.7	70.7
Moderate	8	19.5	90.2
High	4	9.8	100.0
Total	41	100.0	

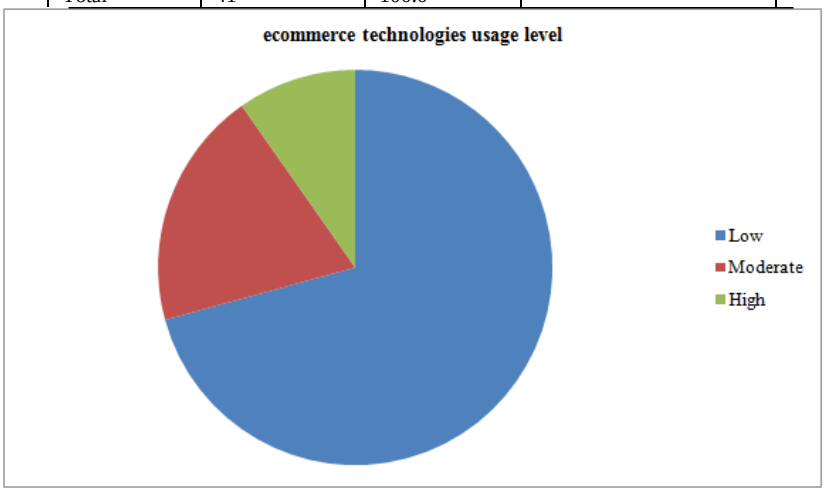

Figure 2: E-commerce technologies usage level

The frequency rating percentage of each usage rank was calculated to establish the rank order of e-commerce technologies usage. Low rank had the highest percentage. This was considered very important for deriving the e-commerce technologies usage in Zimbabwe. It emerged that most Zimbabweans perceive usage of technology enabling e-commerce as low, based on their responses on ranking of the usage level.

9.3 E-commerce technology usage barriers

The respondents were requested to choose the factors that hindered them from using e-commerce technologies. Their responses are shown below.

Table 3: Barriers to using e-commerce technologies

Barrier	Sample	frequency	Response rate
Lack of technical expertise	41	28	68.3
Impulse purchases	41	11	26.8
Privacy and security issues	41	27	65.9
Seller has to bear fraudulent costs	41	24	58.5
High costs of e-commerce technologies	41	32	78.0
High ongoing network charges	41	15	36.6
Complexity in use	41	29	70.7
Chat session hijacking	41	9	22.0
Too much consolidation	41	18	43.9
Internet connection failures	41	16	39.0
Increased risk of eavesdropping and data theft	41	21	51.2

From the research outcomes, the barriers with more than 50% response rate were considered strong hindrances to using e-commerce technologies. The barriers with more than 50% response rate are lack of technical expertise; privacy and security issues; bearing of fraudulent cost by seller, high cost of e-commerce technologies; complexity in use; and increased risk of eavesdropping and data there were the strongest barriers to using e-commerce technologies in Zimbabwe. The results show that impulse purchases; high ongoing network charges; chat session hijacking; too much consolidation; and internet connection failures have response rate less than 50% which shows that they are the weak barriers to using e-commerce technologies.

9.4 Benefits of e-commerce technologies usage

To establish the e-commerce technologies usage benefits, the respondents were required to choose the benefits they thought were brought about by using e-commerce technologies. Their responses are summarised in the Table 4 below.

Table 4: E-commerce technologies usage benefits

benefit	**Sample**	**frequency**	**Response rate**
Reduces paper work	41	23	56.1
Accurate costing	41	8	19.5
Easy information access	41	32	78.0
Cost savings	41	12	29.3
Increased sales	41	9	22.0
Increased coordination with suppliers and customers	41	14	34.1
Resource planning	41	8	19.5
Reduced inventory level	41	3	7.3
Reduced transaction processing cost	41	15	36.6
Customers can pay for goods and services without carrying lots of money	41	23	56.1
Improved cash-flow	41	12	29.3
No receipt of bounced cheques	41	26	63.4
Simple	41	6	14.6
Easy handling of operations	41	17	41.5
Saves long distance telephone costs	41	21	51.2
“locks-in” customers	41	20	48.8
Reduced lead time in production	41	9	22.0
Reduced time delays	41	11	26.8
Better quality information	41	29	70.7
Better operational efficiency	41	18	43.9

The research findings reveal most respondents view easy information access, with response rate of 78% as the benefit of using e-commerce technologies. Reduced inventory control had the least response rate of 7.3%. The other benefits with response rate above 50% include reduced paper work; customers can buy goods without carrying lots of cash; reduced receipt of bounced cheques; saving of long distance telephone costs; and better quality information. Most of the benefits had response rates less than 50% which might be an indication of low usage level. The results therefore indicate that these benefits may act as a driving force to using e-commerce technologies.

X. Summary

This paper sought to analyse the current technology enabling e-commerce. It looked at the e-commerce enabling technologies used in Zimbabwe; the barriers and benefits of using these technologies; and the usage level of the e-commerce enabling technologies. Data was collected using questionnaires and the results were summarised from 41 respondents.

XI. Conclusion

Although Zimbabwe is progressing in technologies, most companies seem to be so reluctant to using technologies enabling e-commerce. The study showed that most companies have not adopted these e-commerce technologies. The mostly used of the e-commerce technologies are the world wide web, instant messaging and OLTP which had response rates above 50%. The response rate on barriers indicate that most companies are reluctant to taking risks of using current technology enabling e-commerce due to high costs of e-commerce technologies; privacy and security issues; fear of fraud; data theft; and lack of expertise. Most companies are using e-commerce technologies for easy access to information and for finding better quality information about the businesses.

From the research findings, it can be concluded that e-commerce technologies currently being used in Zimbabwe are entry level technologies according to adoption ladders by Akkeren and Cavaye (1999). Based on the research findings, it can be concluded that e-commerce enabling technologies are not effectively and efficiently used in Zimbabwe.

XII. Recommendations

This study recommends that more companies should adopt the e-commerce enabling technologies so that they can be globally competitive. Companies should have a better attitude towards these e-commerce technologies. Senior staff of companies should be educated about these e-commerce technologies so that they consider them for their business strategies. Companies are encouraged to look more on the benefits that can be brought by using e-commerce technologies. Adoption of e-commerce technologies will increase their profits; increase their market share and attract more global customers thereby boosting the economy of Zimbabwe.

Further study

For further study, a research on e-commerce security technologies is recommended.

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