

Challenges and Barriers of Implementing E-Commerce Technology among SMEs in Sri Lanka

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Abstract: Small, Medium and Micro enterprises (SMEs) are considered as a key economic sector in Sri Lanka. The presence of e-commerce technologies has brought a vital impact on performance of the businesses. Although, Sri Lanka has a large number of SMEs, the number of the SMEs that adopts e-commerce technologies is low. Thus, it is important to overcome the challenges and barriers of implementing e-commerce technologies among SME sector in Sri Lanka.

The aim of this research is to investigate the challenges and barriers of implementing e-commerce technologies among SME sector in Sri Lanka. This research identifies involvement of both SMEs in Sri Lanka and Sri Lankan Government's corporation to overcome the barriers and challenges in implementing e-commerce technologies in SME businesses in Sri Lanka.

Keywords: E-commerce technology, SME in Sri Lanka

I. INTRODUCTION

Doing businesses online, by making use of internet, computer networks and software is known as Electronic Commerce (E-commerce). E-commerce technologies are considered as a vital component of businesses all over the world. E-commerce technologies help to connect with businesses all over the world through web sites, video conferencing e-mails etc through internet.

It is important to overcome the challenges and barriers of implementing E-commerce technologies among SME sector in Sri Lanka since the SME sector contributes a considerable contribution to the Gross Domestic Production and creates employment. The main stakeholders of this research study are likely to be the SME business owners, customers and government.

The key aim of this research study is to investigate the challenges and barriers of implementing e-commerce technologies among SME sector in Sri Lanka and achieve objectives of finding out the users' attitudes towards the e-commerce usage, challenges and barriers of implementing e-commerce technology among SME sector in Sri Lanka and the relationship between e-commerce technology and financial performance of SME sector.

II. LITERATURE REVIEW

Introduction to E-commerce in SME sector in Sri Lanka

World Bank has defined SMEs in Sri Lanka as the business with 10 to 250 employees (Cooray, 2003). Accordingly, in this study enterprises with 10 to 250 employees will be considered as SMEs in Sri Lanka. SMEs consists more than 75% of the total number of enterprises in Sri Lanka, provides employment for more than 45% of the working population in Sri Lanka and contributes more than 52% of the Gross Domestic Production (GDP) of Sri Lanka (Ministry of Commerce, 2013).

In 2004, Grandona and Pearson's has defined e-commerce as the process of buying and selling services and goods by utilizing electronic data transmission through the internet and world wide web. E-businesses introduce innovative opportunities for companies to compete in world market by improving the competitiveness of businesses by enhancing new communication and information technologies which links business patterns and customers (Pilinkiene et al., 2013 and Chen and Hamdan, 2014).

In the current business environment, increasingly developing internet related technology and infrastructure are main drives of e-commerce. Many Researchers has shown that there is a positive relationship between e-commerce and relative advantage (Tan and Teo, 2000; Lertwongsatien et al. 2003).

Independent Variable: Attitudes towards e-commerce usage of the customers

Purchasing behaviour of the consumers have rapidly changed since the speed and facilities offered by internet access. To perform online transactions, consumers require having adequate knowledge about e-commerce technologies, access to a computer which is connected to the internet connection, having a debit or a credit card (Cristache, et al., 2015). Gunawardana, K D discusses the potential of e-commerce in Thailand by reviewing the awareness and readiness of the companies in the selected industry sectors. This study also identifies the enabling factors, the bottlenecks and, forecasts the future growth of electronic commerce in Thailand. 500 companies were selected from different industries, 146 out of 500 responded with usable answers. The response rate was 30%, which is an expected rate for such surveys. Awareness of e-commerce among the Thai companies is very high.

Previous Research studies have been carried out to identify how consumers have made choices between physical store shopping and e-shopping. It is stated that young individuals buy online more than elderly individuals (Srinivasan and Bhat, 2005). Individuals' falls in to the higher income group, highly educated individuals and males tend to do more online purchasing (Cao et al., 2013).

In rural areas online buying power is low due to lack of access to modern technologies, internet and lack of knowledge to use the e-commerce technologies. Most of the rural area population does not have personal computers (Cristache, et al 2015).

Independent Variable: Skilled employees

Human capital influences SME sector development and its performance. The changes in the current business environment forces enterprises to change their business strategies in order to achieve its business goals (Muda and Rahman, 2016). Lack of skilled human resources in the SME sector leads to low e-

commerce implementation in the SME companies and affects the development of SMEs' business (Govindaraju and Chandra, 2012). SMEs' employees are required to have training from the beginning in order to deliver and support the implementation of e-commerce (Kapurubandara and Lawson, 2008).

Further previous studies reveal that generally size of the firm including the number employees is insignificant in order to influence on e-commerce adoption possibly since it is rather easier and better to get the e-commerce website and systems by outsourcing the ICT services to an outsourcing firm (Karakaya and Shea, 2008). Further, previous studies reveals that because of the limited resources SMEs have they mostly utilize other ICT outsourcing firms having the required ICT infrastructure (Bell and Loane, 2010).

Independent Variable: ICT security

Customers' are required to have the confidence about the e-commerce technology they use and the individuals or the companies who designed the technologies should build the confidence among the online customers by developing secured and trusted web applications to carry out online transactions (Lai and Turban 2008).

According to the research studies been carried out ICT security and confidentiality is one of the main causes that make innovative implementations. Protected Internet data transmission method is an important factor in making a transaction over the internet. Many customers avoid using e-commerce mainly due to their fear towards ICT security issues and low confidence in the e-commerce setup (Beale, 1999).

Organizations suffer from security issues in many ways such as the confidentiality issues, privacy of the data and security problems in making the payments online and virus issues (Light, 2001; Ratnasingham, 2001). SME enterprises may face issues with trust and security when SME businesses plan to implement e-commerce technologies (Aljitra et al., 2003).

Independent Variable: Government Support

There are many programs conducted by the government institutions such Industrial Development Board (IDB) etc to develop ICT infrastructure in SMEs. SME development programs need to focus their concentration to build a positive environment to provide trustworthy information in order to help SMEs to make good decisions (Priyanath and Premaratne; 2014).

The Government of Sri Lanka consequent to recognizing the significance of developing SMEs have given their concentration in developing SME sector in Sri Lanka (Vijayakumar, 2013). Taking in to consideration of the nature

of SME sector and the challenges faced by SME sector, it is vital to have government intervention in order to develop SME sector and to meet prospects of the country. Government support for SMEs growth had been accepted in growth purposes (Gilanina and Shahraki, 2011; Vadnjaj and Nikolovski, 2011).

Ministry of Commerce and Industry of Sri Lanka has created a National SME Policy Framework in order to make SME sector in Sri Lanka stable, technologically sound, eco-friendly and innovative. One of the policy objectives stated in the National Policy Framework for SME Development in Sri Lanka is to facilitate implementation of Modern technologies for SMEs to increase innovation, quality, competitiveness and productiveness (Ministry of Commerce, 2013).

Theoretical basis of e-commerce implementation

- The Theory of Planned of Behaviour

Ajzen (1991) proposed the Theory of Planned Behaviour from the social psychology background. It is useful to foresee the planned behaviour of the customers. Theory of planned behaviour comprises of attitudes, behavioural intention, social norms, subjective norms, perceived power and perceived behavioural control.

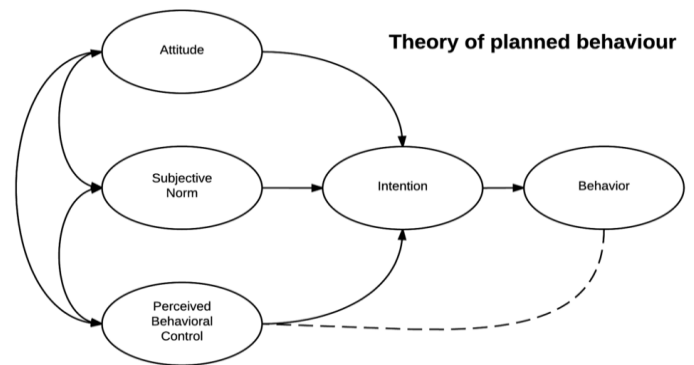


Figure 1 - Source: www.valuebased.net

Accordingly, theory of planned behaviour is useful to find out the attitudes and behaviour of the customers towards e-commerce usage. Identifying the attitudes and behaviour of customers is useful in implementing e-commerce technologies in SME businesses in Sri Lanka.

- Technological Acceptance Model (TAM)

Another key theory widely used in information technology adoption literature is the Technology Acceptance Model. Technology Acceptance Model was developed by Davis (1986) to explain the user adoption of technology in organisations.

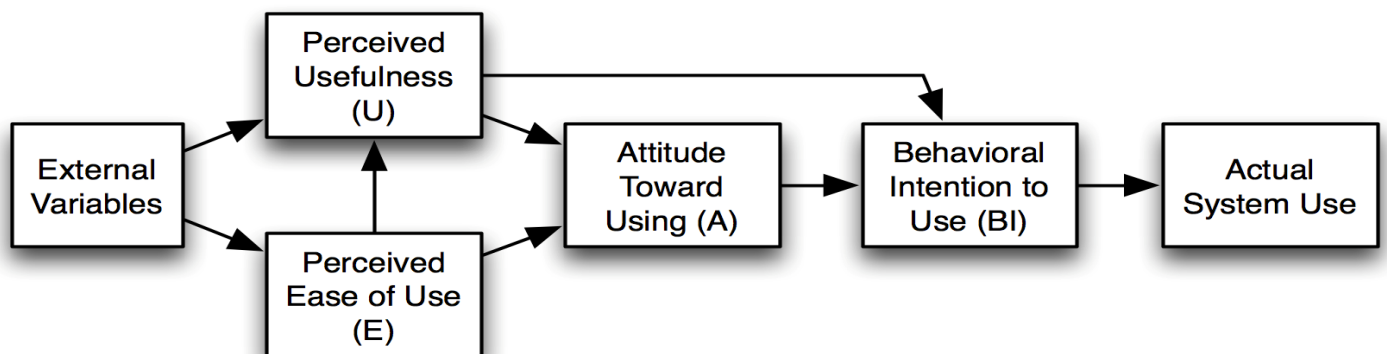


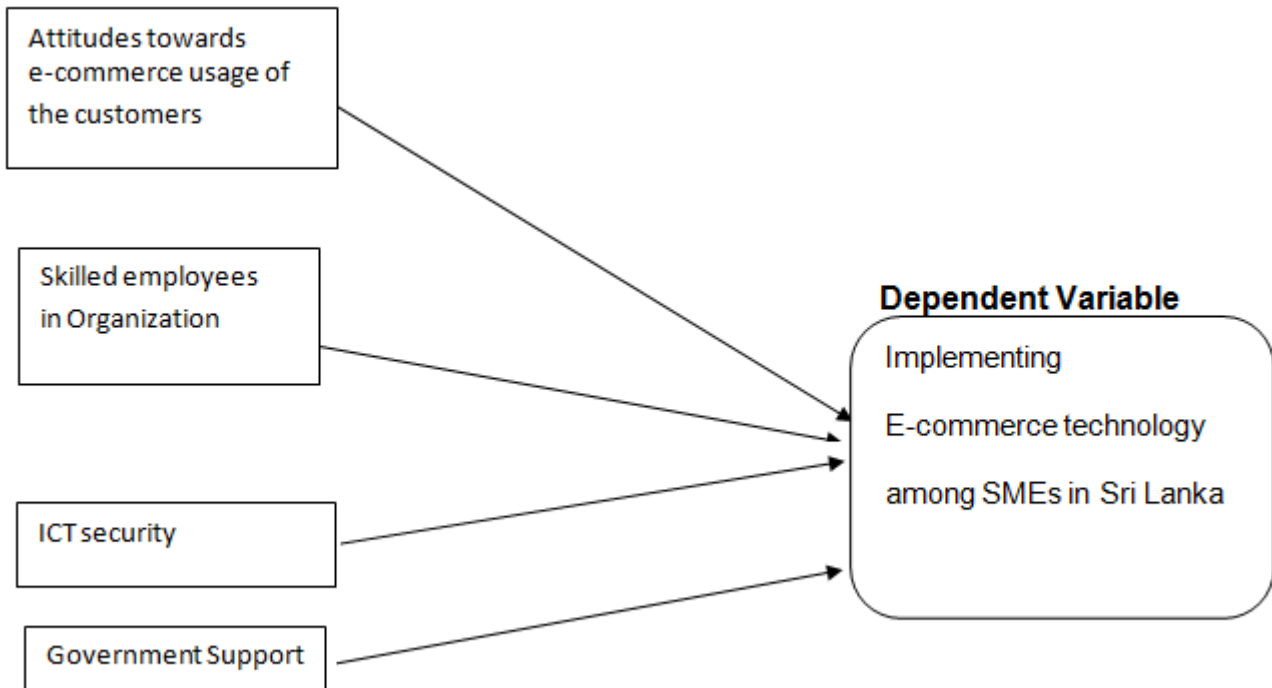
Figure 2 - Source: www.valuebased.net

Technological Acceptance Model describes the level to which users and customers trust that using the system will increase the individuals' performance. This model shows how uses accept the new technology. This theory helps in determining the attitudes towards adoption of the technologies (Davis & Arbor, 1989).

III. RESEARCH METHODOLOGY

- Conceptual Framework

Independent Variables



Independent Variables

To test the variables listed in the conceptual model a mixed approach was applied using quantitative data analysis approach and qualitative data analysis approach methodologies.

- Population

When selecting the SMEs the World Bank definition of SMEs in Sri Lanka has been followed. World Bank has defined SMEs in Sri Lanka as business with 10 to 250 employees (Cooray, 2003).

Accordingly, for this study, businesses with employees 10 to 250 employees are been considered as SMEs in Sri Lanka. The target population will make up of owners and managers of SMEs having any stage of education and income however, they should have used the internet.

- Sample

As the target sample in this research will be a representative sample of the aforesaid population of SME businesses, centred in Colombo district and Gampaha district will be considered.

- Statistical methods used in the research study

To choose the sample among the probability sampling techniques methods random sampling technique method had been used. The research data has been analysed by using frequency analysis, descriptive analysis, reliability analysis, correlation analysis regression analysis.

- Quantitative Data Analysis

In order to carry out the survey 110 questionnaires were distributed to owners and managers from diversified SME

sector. However, only 56 questionnaires were returned by the respondents and 06 questionnaires were incomplete. Overall response rate is 50%. The research results are analysed using frequency analysis, reliability analysis, descriptive analysis, correlation analysis and regression analysis.

Reliability test

Reliability test measures the overall steadiness of the results of the statements in the questionnaires relating to the variables. Model – Alpha is the most popular measure to test the reliability.

Reliability Statistics	
Cronbach's Alpha	N of Items
.766	25

Table: 1

Since the reliability of the data is more than 69% the reliability of data is considered as satisfactory.

List of Hypothesis

H_{1a}: There is a relationship between attitudes towards e-commerce usage of the customer and implementing e-commerce technology among SME in Sri Lanka.

H_{2a}: There is a relationship between skilled employees and implementing e-commerce technology among SME in Sri Lanka.

H_{3a}: There is a relationship between ICT security and implementing e-commerce technology among SME in Sri Lanka.

H_{4a}: There is a relationship between Government Support and implementing e-commerce technology among SME in Sri Lanka.

Correlation Analysis

Consequent to the correlation test analysis the following relationships between independent variable and the dependent variable were discovered;

H1 - Since the significance value is less than 0.05, there *is a relationship* between Attitudes towards e-commerce usage of the customers and Implementation of e-commerce technologies among SMEs in Sri Lanka

Regression Analysis

H2 - Since the significance value is more than 0.05, there *is No relationship* between Availability of Skilled Employees and Implementation of e-commerce technologies among SMEs in Sri Lanka

H3 - Since the significance value is less than 0.05, there *is a relationship* between Government Support and Implementation of e-commerce technologies among SMEs in Sri Lanka

H4 - Since the significance value is less than 0.05, there *is a relationship* between ICT security and Implementation of e-commerce technologies among SMEs in Sri Lanka

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.614	4	.903	6.936	.000 ^b
	Residual	5.861	45	.130		
	Total	9.475	49			

a. Dependent Variable: Average of Implementation of e-commerce technologies among SMEs in Sri Lanka

b. Predictors: (Constant), Average ICT Security, Average Availability of Skilled Employees, Average Government Support, Average Attitudes towards e-commerce usage of the customers

Table 2: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.199	1.017		1.179	.245
	Average Attitudes towards e-commerce usage of the customers	.354	.172	.287	2.058	.045
	Average Availability of Skilled Employees	-.029	.070	-.053	-.419	.677
	Average Government Support	.177	.140	.159	1.258	.215
	Average ICT Security	.911	.264	.423	3.450	.001

a. Dependent Variable: Average of Implementation of e-commerce technologies among SMEs in Sri Lanka

Table: 3

Model Building

By using the statistics of the quantitative data analysis, the following model has been developed to forecast value of the dependent variable in relation to correlated independent variables.

Where Y represents the value of the dependent variable

X represents the value of the independent variable

Attitudes towards e-commerce usage of the customers

$$Y = 0.354X + 1.199$$

ICT Security

$$Y = 0.177X + 1.199$$

Government Support

$$Y = 0.911X + 1.199$$

Qualitative Data Analysis

To strengthen the results of the quantitative data analysis qualitative data analysis has been carried out. Qualitative

research analysis has been carried out by interviewing the 15 respondents through telephone conversation and by interviewing personally.

Qualitative analysis revealed that there is a relationship between attitudes towards e-commerce usage of the customers, ICT security and Government Support with the implementation of e-commerce technologies among SMEs.

Discussion and Findings

According to the findings from the qualitative and quantitative analysis and as revealed by previous literature it is found that there is a relationship between attitudes towards e-commerce usage of the customers, ICT security and Government Support with the implementation of e-commerce technologies among SMEs. Further, the author was able to find the perspectives of the SME sector owners through the qualitative data analysis.

All research objectives of this research study which is set-out below have been achieved;

- users' attitudes towards the e-commerce usage has been analysed

- challenges and barriers of implementing e-commerce technology among SME sector in Sri Lanka has been identified
- relationship between e-commerce technologies and financial performance of the SME sectors been identified

CONCLUSION

This research study analyses and provides an understanding of the barriers and challenges faced by SMEs in Sri Lanka when implementing e-commerce technologies. By analysing the previous research studies a conceptual framework has been developed by identifying the factors that may affect the implementation of e-commerce technologies. To test the factors that would affect e-commerce technologies in Sri Lanka a mix research approach has been followed. Quantitative research analysis has been performed by distributing a survey questionnaire among respondents. Further, a qualitative research analysis was carried out by interviewing 15 respondents.

The factors such as the attitudes of the customers towards e-commerce usage, ICT security and government support are been identified as the factors that affect implementation of e-commerce technologies among SME sector in Sri Lanka. The results revealed that most of SMEs in Sri Lanka are likely to adopt e-commerce technologies in future.

The results would show the requirement for both SMEs in Sri Lanka and Sri Lanka Government's assistance and corporation to overcome the barriers and challenges in implementing e-commerce technologies in SME businesses in Sri Lanka. It is been realized that Sri Lankan government support and intervention is necessary to build good speedy e-commerce technology infrastructure to encourage the usage of e-commerce technologies.

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