Factors Influencing Adoption of Information and Communication Technology (ICT) among Small and Medium Enterprises (SMEs) in Tanzania

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Abstract - This paper analyzed factors influencing adoption of ICT among SMEs in Tanzania. The population of the study comprised SMEs owners and employee who have adopted the use of ICT in their business enterprises in Iringa region. Sample size of 208 respondents was chosen randomly from SMEs in Iringa Region. Multiple regression analysis were used in analyzing the data collected from the sample using questionnaire to determine the magnitude of relationship on factors influencing SMEs adoption of ICT. Cronbach’s alpha was used to test the suitability of research instrument used in collecting data for the study. Finding using multiple regression revealed that Perceived ease of use, Perceived ease to learn and Perceived usefulness of ICT strongly influence SMEs adoption of ICT. The study concluded that Perceived ease to learn, Perceived ease to use and Perceived usefulness of technology has significant influence for SMEs to adopt technology not only in Tanzania business environment also even to other developing countries. To improve on adoption, this paper recommended that the government should facilitate and encourage the use of ICT among SMEs.

Key words: Adoption, Information and Communication Technology, SMEs

I: INTRODUCTION

In the twenty first century where the market is global, operating environment of businesses is continuously becoming complex and competition is a cut-throat, most businesses strive for competitive advantage over their competitors. Coping with these complex and dynamic business environments, both small and large enterprises requires continuous adoption and innovation in deployment of emerging technologies and management concepts. As it is recognized in Tanzania’s National ICT Policy of 2003, ICT offers new opportunities to enhance business operation and to improve the quality of delivery of business services in all areas. Similarly the SMEs policy of 2003 in Tanzania advocate that, the use of ICT in business daily operation as well as administration and management of business represents a powerful tool with which to achieve business goal and national development objectives (URT, 2007). Alam and Noor (2009) argued that now days small business are increasingly using ICT due to cost effectiveness and cheaper and efficient of ICT products in facilitating business operation.

Hence, ICT are regarded as a vital tool for the efficient administration of any
organization transaction and in the delivery of business services to its clients.

Realizing that, ICT is a major source of competitive advantage as well as a cost effective way for SMEs to reach customers globally and to compete with their counterparts globally, the government of the Republic of Tanzania is actively assisting SMEs with expanding, growing and prospering their businesses through the development of various policies and programs for improving the economic environment for SMEs. Key initiatives has been introduced which includes (a) The establishment of National ICT policy (URT, 2003), (b) The establishment of the Tanzania Communication Regulatory Authority (TCRA) to regulate communication technology (URT,2003) and (c) establishment of SMEs National policy(URT,2003).Such initiatives have created a sound environment for supporting Tanzania SMEs financially and promoting the adoption of latest technologies for SMEs to develop their respective businesses. However, despite of the initiative of the government of Tanzania to SMEs in adoption of ICT and their potential in economic and social development, Msanjila and Kamuzora (2012)On their study of collaborative network as mechanism for strengthening competitiveness among SMEs in Tanzania argued that only large organizations can afford to institute innovation of emerging technology. Similarly, A study done by Akomea-Bonsu and Sampong (2012) among SMEs in Ghana indicated that Larger businesses have taken the opportunity of ICT to gain the edge over their competitors unlike the small and medium enterprises.Further Irefin, et al.(2012) advocate that as the global economy became increasingly reliant on ICT to receive, process, and send out information, the small businesses within the developing countries which form a significant portion of their developing economies have yet to reap these benefits offered by ICT. With this situation of low uptake of ICT by SMEs Kabanda(2011) argued that due to their small size, lack of competitive capital and inability to acquire complex opportunities, majority of SMEs find it difficult to cope with the required speed of change of technology. Thus this study intended to analyze factors influencing adoption of ICT among SMEs in Tanzania.
II: LITERATURE REVIEW

Theoretical Literature Review

According to Sam, et al. (2012) adoption and implementation of new technologies is essential to the survival and growth of the small business sector. Generally, there are three common models employed in technology acceptance researches, namely, the Theory of Research Action (TRA), the Theory of Planned Behaviour (TPB) and the Technology Acceptance Model (TAM). TAM, however, is a better model used by researchers to study user acceptance and use of technology as it is a parsimonious model that explains much of the variance in users’ behavioral intention.

TAM model employed by Davis (1989) theorized that perceived usefulness (PU) and perceived ease of use (PEOU) as the two main determinants of user acceptance and use of technology. In this study TAM has informed the researcher on how the characteristics of technology itself such as ease of use and usefulness of technology influence SMEs to adopt ICT.

Empirical Literature Review and Hypothesis development

TAM is used as the base model, this study need to test the following TAM hypotheses in the context of ICT adoption.

Perceived Usefulness

Davis (1989) defined perceived usefulness as the belief that using a particular technology will enhance the potential user’s job performance. Prior studies (Alam, et al., 2011; Sam, et al., 2012; Akbari and Pijani, 2013) provide evidence that perceived usefulness is an important determinant of ICT adoption among SMEs. Similarly, Kiveu (2013) on the study of determinant of ICT adoption and Use among SMEs in Kenya revealed that ICT adoption was more influenced by perceived usefulness. This means that a potential user of ICT who perceives the technologies as useful is more likely to adopt the ICT.

Thus this posits hypothesis: HI: Perceived Usefulness of ICT technology strongly influence SMEs to adopt ICT

Perceived ease of use

Perceived Ease of Use defined by Davis (1989) as the degree to which a person believes that using a particular system would be free of effort. This indicator reflects the potential difficulty for the adopting firm to use ICT if required to learn to use the new technology. Prior studies (Noor, 2009; Dlodlo and Dhurup, 2013) provides evidence of the significant effect of perceived ease of use has on adoption of ICT among SMEs. Similarly, Azam and Quaddus (2013) on their study of examining the Influence of National Culture on Adoption and Use of Information and Communication Technology: A Study from Bangladesh’s SME Perspective revealed a significant association of perceived ease of use with SMEs’ intention to use ICT as well as a strong and significant effect of intention on actual use of ICT by SMEs in Bangladesh. Contrary to other study Akbari and Pijani (2013) on their study of ICT Adoption: A Case Study of SMEs in Iran found that ease of use does not influence adoption of ICT among SMEs.

Thus this posits two hypotheses:

H2: Perceived ease to learn ICT technology strongly influence SMEs to adopt ICT

H3: Perceived ease to use ICT technology strongly influence SMEs to adopt ICT

II: RESEARCH METHODOLOGY

Quantitative approach was used to determine the magnitude of each factor in
influencing adoption of information technology among SMEs. Simple random sampling was used to obtain 208 respondents who are SMEs owners and employee in Iringa region where questionnaire where used to capture data to test hypothesis. Pilot study was done prior the main survey in order to test the suitability of research instrument before actual data collection. Multiple regression analysis were used to test for relationship and strength of relationship among the factors influencing adoption of technology.

IV: STUDY FINDINGS
This part presented the results of analysis. The results are as follows: reliability statistics, regression analysis.

Table 1 Reliability Statistics

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>.781</td>
<td>.787</td>
<td>3</td>
<td>208</td>
</tr>
</tbody>
</table>

The reliability statistic in table 1 above indicates that they were total number of 208 Cases and 3 number of Items. To assess the reliability of the factors, the researcher computed Cronbach’s alpha(p) of 0.787, which is coefficient of reliability and it suggests that the measures are acceptable.

Regression Analysis
Multiple regressions was done to test three hypothesis as it has been described below:

Table 2 Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.790a</td>
<td>.624</td>
<td>.618</td>
<td>.555</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Perceived ease to use, Perceived usefulness, Perceived ease to learn
The results provided in table 2 showed that dependent variable “SMEs adoption of ICT: is explained well by independent variables “Perceived ease to use, Perceived ease to learn and Perceived usefulness’ and to a large extent as demonstrated by $R^2$ of 62%. This means that the independent variables explain 62% of the variation in the dependent variable in this study, which is high large.

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>104.190</td>
<td>3</td>
<td>34.730</td>
<td>112.807</td>
<td>.000*</td>
</tr>
<tr>
<td>Residual</td>
<td>62.805</td>
<td>204</td>
<td>.308</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>166.995</td>
<td>207</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: SMEs adoption of ICT
b. Predictors: (Constant), Perceived ease to use, Perceived usefulness, Perceived ease to learn

The results provided in table 4 showed that overall, the model applied in this study can statistically significantly predict the outcome variable of relationship between dependent variable” SMEs adoption of ICT” and predictors “Perceived ease to use, Perceived ease to learn and Perceived usefulness’ to a large extent as demonstrated by p-value less than 0.05 in a ANOVA table.
The results provided in table 4 showed that Perceived Usefulness of ICT technology strongly influence SMEs to adopt ICT in Tanzania to a large extent as demonstrated by p-value less than 0.05 in a coefficients table. Hence hypothesis H1 is accepted which state that Perceived Usefulness of ICT technology strongly influence SMEs to adopt ICT. Further table 4 showed that both Perceived ease to learn and Perceived ease to use strongly influence SMEs to adopt ICT in Tanzania to a large extent as demonstrated by p-value less than 0.05 in a coefficients table. Hence hypothesis H2 and H3 are accepted as they described below: H2: Perceived ease to learn ICT technology strongly influence SMEs to adopt ICT. H3: Perceived ease to use ICT technology strongly influence SMEs to adopt ICT.

The findings provided in table 4 are similar to study done by Mochoge (2014) on SMEs' Adoption Of Web-Based Marketing: Empirical Evidence From Kenya which revealed that perceived ease of use and perceived usefulness are major determinant of adoption of web-based marketing services. Furthermore finding from this study are also supported by study done by Long, et al (2010) on ICT Adoption Among Adults in South Western Nigeria: An Assessment of Usage-Phobia Factors. These Empirical evidence from Kenya and South Western Nigeria supporting findings of this study provides evidence that findings from this study can also be generalized even to other African countries. The conclusion of this study is that in order for the SMEs to adopt and harness the full potential of ICT, factors like Perceived ease to use, Perceived ease to learn and Perceived usefulness of ICT can influence SMEs to full adopt ICT not only in Tanzania but even to other countries such as Kenya and Nigeria.
Conclusion and Recommendation

One of the objectives of adoption of ICT is to enable SMEs to fully harness the opportunities offered by ICT for them to operate efficiently in the global market and strive for competitive advantage over their competitors. For SMEs to adopt ICT for business purpose in Tanzania, the following are recommended:

1. The government and other stakeholder should help stepping up ICT awareness and training among SMEs owners, employees and the public, formulation of supportive policies, subsidizing the cost of ICT and development of customized ICT products and applications for SMEs.

2. The Government of Tanzania should also develop an appropriate programme to encourage ICT adoption by establishing a special fund to support ICT adoption; by building capacity of SMEs to embrace ICT and invest in appropriate communication infrastructure for SMEs which could help improve their business and make them more competitive.

3. This study focused on how technology itself influences SMEs to adopt it, further study should be done to focus on how organization itself and outside pressure influence SMEs to adopt ICT.
Reference


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AUTHOR PROFILE

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