BARRIERS TO THE ADOPTION OF ICT BY SMES IN ZIMBABWE: AN EXPLORATORY STUDY IN CHINHOYI DISTRICT

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Abstract
The emergence of the internet has allowed small and medium-sized enterprises (SMEs) to compete effectively and efficiently in both domestic and international markets. However, despite advances in ICT and the acceptance of such technologies by large organisations, the same level of adoption is not evident among SMEs in Zimbabwe. The purpose of this study was therefore to come up with a set of potential determinants that affect the adoption of ICT by SMEs on one hand and a set of potential supporting activities to overcome the barriers on the other. The study revealed that both, internal and external barriers inhibit the adoption of ICT by SMEs. Internal barriers can be resolved within the organisation by the organisation itself, while external barriers need to be addressed either by government intervention or by associations of SMEs. The study further identifies the relevant support required by SMEs in a developing country, like Zimbabwe.

Key words: Information and Communication Technology (ICT), Small and Medium sized Enterprises (SMEs), adoption, policy, internet services, developing countries and barriers.

1. INTRODUCTION
Small and medium enterprises are critical to the growth of national economies. For this reason, governments, the world over, spend their time developing the SMEs sector to promote economic growth (Travica 2002). In Zimbabwe SMEs contribute 80% of private sector employment and 35% of the gross domestic product. Zimbabwe has the highest unemployment rate in Southern Africa. Zimbabwe also experiences high levels of poverty and income inequality. One of the strategies of eliminating unemployment and income inequality is to promote small business development. In other words, new SMEs must be created every year. New SMEs provide the foundation on which national economies can expand and stimulate accelerated socio-economic growth, development and job creation.

According to Maas and Davis (1999) described a new SME as an entity that has been in existence for less than three and a half years.

Although the role of SMEs in innovation and employment creation is widely acknowledgement, SMEs are perceived to have a high risk profile by financial institutions. This result in players within the sector being charged higher interest rates compared to larger firms, thus unnecessarily increasingly operation costs and reducing their
competitiveness. The track records for most SMEs are patchy or short due to inadequate or poor record keeping, while assets and collateral may not be sufficient enough to underwrite credit. Management skills in handling finances and other technical requirements are often limited (Jennex and Amoroso 2002).

In India, SMEs play a pivotal role in the growth of the economy, accounting for a 40% share in industrial output and producing over 8,000 different types of value-added products. SMEs are a major force in the Malaysian economy. The sector accounts for 80% of all goods sold within the economy. SMEs account for about 46% of Brazil's investment in data transmission, and telecommunication infrastructure. This has forced companies within the telecommunications sector to develop cost-efficient products for SMEs in order to guarantee future growth. There are 4.69 million SMEs in Japan constituting 99.7% of all enterprises and account for 70% of all employment in the Japanese economy (Jennex and Amoroso, 2002).

1.2 BACKGROUND AND SIGNIFICANCE OF THE STUDY

Large organizations have enough resources to adopt ICT while on the other hand SMEs have limited financial and human resources to adopt ICT. Duan et al, 2002 identified lack of ICT skills and knowledge in SMEs as one of the major challenges faced by all European countries, particularly in the UK, Poland, and Portugal. In their study, Houghton et al (1999), have reported a slow response of SMEs, relating to the adoption of ICT. Mukti (2000), found that characteristics of the firm and industry sector are contributory to the adoption and exploitation of ICTs by SMEs. Pinsonneault and Kraemer (1993) have categorized internal and external barriers that impede adoption of ICT by SMEs in a developing countries. The internal barriers include; owner manager characteristics, cost and return on investment, and external barriers include; infrastructure, social, cultural, political, legal and regulatory.

There are very few studies about ICT adoption in developing countries (Schmid et al 2001). Panagariya (2000) found that one of the major factors inhibiting ICT diffusion and intense utilization is poor physical infrastructure. In developing countries some of the ICT adoption challenges include legal and regulatory issues, weak ICT strategies, lack of R and D, excessive reliance on foreign technology and ongoing weaknesses in ICT implementation (Thong and Yap 1995).

SMEs could be seen as being no different from their larger corporate cousins in one key aspect; namely, to survive and prosper in competitive business areas. Marshalls et al (2000) argues that competitive advantage requires above average profitability over a number of years. This can be achieved when there is a fit between the structural conditions of the industry that the firm trades in and the strategic choice that they make. Essentially strategic choice refers to the pursuit of either a cost leadership position of differentiated position predicated on offering a superior value proposition to customers. To this end, ICT is critical in helping SMEs to facilitate one or more strategic choices. Elkin (2001) and Cooray (2003) have expressed opposing views as to the value of ICT in achieving superior business performance. The evidence in terms of SMEs use of ICT for strategic objectives is somewhat mixed. Bingi et al (2000), argue that SMEs have the opportunity to achieve a competitive advantage from advances in ICT through innovation, marketing, efficiency gains, better quality and customer responsiveness. However, owner’s attitudes and lack of relevant knowledge and skills place limitation to the adoption of ICT by SMEs, particularly those outside urban areas. This study, therefore, has implications for policy makers and ICT managers to...
create an enabling environment in which SMEs in both rural and urban areas can easily access ICT technology and use it for their technical development.

2. LITERATURE REVIEW

In Zimbabwe, there is no clear definition of SME as government agencies use a plethora of different criteria to define SMEs. The main criteria used are, the number of employees, the size of fixed investment, the nature of the business and the sector. However, the most widely used definition of an SME is that of a firm with 0-250 employees. In Zimbabwe SMEs are grouped into Micro Enterprises, Small Enterprises and Medium-sized Enterprises, as shown in Table 1 below.

Table 1: Groups of SMEs

<table>
<thead>
<tr>
<th>Number of Employees</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 and 49 employees</td>
<td>Micro-enterprises have fewer than 10 employees</td>
</tr>
<tr>
<td>Small enterprises</td>
<td>Small enterprises have between 10 and 49 employees</td>
</tr>
<tr>
<td>Medium-sized enterprises</td>
<td>Medium sized enterprises have fewer than 250 employees</td>
</tr>
</tbody>
</table>

(Adapted from European Union, 2003 Gamage, 2003)

The decline in employment levels within the formal sector in Zimbabwe since the year 2000 due to company closures and retrenchments, attributed to low capacity utilization, has resulted in the SMEs sector assuming a greater prominence in providing a source of livelihood to many families. There is therefore need to support and nurture the growth of SMEs so as to enable the sector to contribute meaningfully to national and economic development. In Zimbabwe, the perceptions of senior managers as to the strategic value of ICT in SMEs is related primarily to improving managerial decision making (Soni, 2007). SMEs in Zimbabwe think that ICT is not strategically important for their business (Soni, 2007).

Barriers to ICT Adoption by SMEs

The owner/managers play a pivotal role in decision making in SMEs. Chau and Turner (2001) argue that the owner’s lack of knowledge of ICT technology and perceived benefits is a major barrier to the adoption of ICT. The lack of knowledge on how to use the technology and the low computer literacy are other contributing factors for not adopting ICT (Knol and Stroeken 2001). Mistrust of the IT industry and lack of time are two other factors that affect the decision to adopt ICT. SMEs are in business to make profit. Therefore SMEs owners are concerned about a return on their investments. (Akkeren and Cavaye 1999).

There are factors related to characteristics of the organization which affect the adoption of ICT. Icovou et al (Bingi et al) found that the present level of technology adoption in organization affect the process of ICT use. The OECD (Panagariya 2000), discovered that lack of awareness; uncertainty about the benefits ICT; lack of human resources and skills; set-up costs and pricing issues and security concerns are the most significant barriers to ICT adoption. Research studies on ICT adoption by SMEs in Africa have revealed that economic, political and cultural factors are important barriers to ICT adoption (Mehrtens et al 2001). Developing countries face a number of challenges when it comes to ICT use and adoption. These challenges include; lack of telecommunication infrastructure, lack of technicians in ICT, and low computer and internet penetration (Anigani 1999). Cultural barriers in Zimbabwe make it difficult for some SMEs in the rural areas to accept and use ICT. Cloete et al (2002) in a study of SMEs in South
Africa found that ICT adoption is significantly influenced by factors in the organization. These factors include; lack of access to computer software, other hardware, and telecommunication at a reasonable cost; security concerns and unclear benefits from ICT, were found to be major factors that inhibit ICT adoption. A comparative study in China found that, limited diffusion of computers, high cost of internet access and a lack of online payment processes, were found to directly inhibit ICT adoption by SMEs. Inadequate transportation and delivery networks, limited availability of banking services, and uncertain taxation rules inhibit ICT adoption indirectly (Cooray 2003).

El Nawawy and Ismail (1999) in their study of ICT adoption by SMEs in Egypt, found that ICT awareness and education, market size, e-commerce infrastructure, telecommunications infrastructure, financial infrastructure, the legal system, the government’s role pricing structure, and social psychological factors all inhibit ICT adoption by SMEs. Schmid et al (2001) coulud that the main-ICT issues facing SMEs in Argentina are awareness, access to hardware and organizational culture. However, barriers to ICT adoption by SMEs can be categorized into internal and external barriers. Internal barriers can further be grouped into individual (owner/manager), organisational barriers and cost and return on investment (Beauty et al 2000). SMEs have control over internal barriers. SMEs have no control over external barriers, as shown in figure 1 below.

**Figure 1: Model- barriers to ICT adoption**

![Diagram of barriers to ICT adoption]

**Internal Barriers**
- Owner manager characteristics
- Firm characteristics
- Cost and return on investment
- Support within the organisation

**External Barriers**
- Infrastructure
- Social and Cultural
- Political
- Support external to the organisation

Resolved By

Sources: Mkuti (2000)
3. METHODOLOGY

This research study examines the barriers to ICT adoption by SMEs in Zimbabwe. The study looks at SMEs in Chinhoyi District. An exploratory investigation was considered the most suitable approach for this study, given the lack of empirical research in this area. The study was conducted in two stages: preliminary pilot study, and then a questionnaire and interviews with SME intermediary organization. The preliminary pilot interviews with 10 SMEs in Zvimba district were conducted in October 2011. This provided direction to what barriers are imperative to the SMEs. This was supported by an extensive literature review, which contributed to the design of the research model presented. The questionnaire of 400 SMEs and 6 interviews with intermediary organizations were conducted in January 2012.

The questionnaire was the main instrument of this exploratory study and was designed after going through a few similar research studies on SMEs in Africa. A survey instrument with questions using likert scales was divided into four sections: the first section collected information on internal barriers while the second section collected information on external barriers. The third section focused on the internal and external support required by the organization while the fourth section collected information on the ICT usage and demographics of the company. A number of the questionnaires were administered in Chinhoyi district by using postal, telephone and e-mail surveys. A covering letter provided, explained the purpose of the study, assured anonymity of respondents and their organization, and provided instructions on how and who should complete the questionnaire. A postage-paid and self-addressed return envelope was sent to the owners/managing directors of 400 organisations. The recipients were selected using a random systematic sampling technique using a reputable Zimbabwe telephone directory. Follow-up effort to non-respondents was made via telephone calls and post, weeks after the mail-out. There were 150 total responses received out of the 400 questionnaires administered. Therefore the response rate was 37.5 percent. This sample size is considered adequate for the analysis and is comparable to response rate in IS literature (Pinsonneault and Kremer, 1993).

The respondent SMEs were predominantly liability companies, family business and partnerships (94.7%). All organisations had computers, with 75.7% using a local area network, and 63% with a website. These companies primarily used the phone (92% and email 79%) for communication with their customers and suppliers. Industry sectors represented included; services (37%), manufacturing (33.8%) and wholesale trade (10.5%). Most owner/managers were male (94.7%) and a majority were professionally qualified (52%).

Objectives of the study

1. Establish the barriers to ICT adoption by SMEs.
2. Establish the relative importance of the barriers affecting SMEs in adopting ICT technologies.
3. Establish the relative importance of the supporting activities that help overcome the barriers.

4. RESULTS AND DISCUSSION

Based on the initial 50 that responded to the postal survey, Table 2 shows the top 6 internal barriers of nine listed. Table 3 shows the external barriers divided into cultural, infrastructure, political, social and legal and regulatory barriers. Respondents were asked to indicate their agreement with statements by circling a number of the Likert scale (1=strongly disagree to 5=strongly agree). The results shown returned a mean higher than 3.
Table 2: Internal Barriers to using or extending use of ICT.

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Mean</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees lack required skills</td>
<td>3.37</td>
<td>18</td>
<td>60.0</td>
</tr>
<tr>
<td>ICT has no financial gains</td>
<td>3.26</td>
<td>14</td>
<td>51.9</td>
</tr>
<tr>
<td>ICT is not suited to products and services</td>
<td>3.07</td>
<td>14</td>
<td>50.0</td>
</tr>
<tr>
<td>ICT not suited to way business is done</td>
<td>3.03</td>
<td>13</td>
<td>44.8</td>
</tr>
<tr>
<td>ICT not suited to our customers and suppliers</td>
<td>3.03</td>
<td>12</td>
<td>41.4</td>
</tr>
<tr>
<td>Security concerns with payments over the internet</td>
<td>3.03</td>
<td>14</td>
<td>46.7</td>
</tr>
</tbody>
</table>

N = Number of organisations.

Interpretation of Preliminary Internal Barriers.

Internal barriers such as the lack of skills required and the lack of awareness of any return on investment are holding back SMEs from adopting ICT technologies. Also the fact that ICT is not suited to the way business is done appears to be another inhibiting factor.

Table 3: External Barriers to using or extending ICT.

<table>
<thead>
<tr>
<th>Barriers</th>
<th>MEAN</th>
<th>N</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural Barriers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Lack of popularity for online marketing and sales</td>
<td>3.19</td>
<td>19</td>
<td>57.4</td>
</tr>
<tr>
<td>Infrastructure barriers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Inadequate speed and quality of infrastructure.</td>
<td>3.23</td>
<td>19</td>
<td>54.3</td>
</tr>
<tr>
<td>2. Low internet penetration in the country</td>
<td>3.24</td>
<td>20</td>
<td>54.1</td>
</tr>
</tbody>
</table>
Political barriers
1. Unstable economic environment in the country  
2. Changing regulations with each government change

<table>
<thead>
<tr>
<th>Issue</th>
<th>Mean</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Unstable economic environment in the country</td>
<td>3.16</td>
<td>18</td>
<td>50.7</td>
</tr>
<tr>
<td>2. Changing regulations with each government change</td>
<td>3.21</td>
<td>20</td>
<td>52.6</td>
</tr>
</tbody>
</table>

Social barriers
1. No one-stop-shop facility for services  
2. Lack of information on ICT  
3. Senior management in the sector lack ICT knowledge

<table>
<thead>
<tr>
<th>Issue</th>
<th>Mean</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No one-stop-shop facility for services</td>
<td>3.37</td>
<td>21</td>
<td>60</td>
</tr>
<tr>
<td>2. Lack of information on ICT</td>
<td>3.32</td>
<td>23</td>
<td>62.2</td>
</tr>
<tr>
<td>3. Senior management in the sector lack ICT knowledge</td>
<td>3.06</td>
<td>15</td>
<td>44.1</td>
</tr>
</tbody>
</table>

Legal and regulatory barriers
1. Little support and policies for SMEs from government and industry associations
2. Inadequate legal frame network for business using ICT
3. No simple procedures and guidelines
4. Lack of suitable software standards

<table>
<thead>
<tr>
<th>Issue</th>
<th>Mean</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Little support and policies for SMEs from government and industry associations</td>
<td>3.64</td>
<td>27</td>
<td>75</td>
</tr>
<tr>
<td>2. Inadequate legal frame network for business using ICT</td>
<td>3.47</td>
<td>21</td>
<td>62.8</td>
</tr>
<tr>
<td>3. No simple procedures and guidelines</td>
<td>3.38</td>
<td>24</td>
<td>64.9</td>
</tr>
<tr>
<td>4. Lack of suitable software standards</td>
<td>3.21</td>
<td>20</td>
<td>52.6</td>
</tr>
</tbody>
</table>

N=number of organizations

Interpretation of Preliminary External Barriers
The majority of the respondents agreed that political barriers have a major impact on every advancement or expansion, be it technology or otherwise. The SMEs are hesitant to invest, probably due to fear of changing policies when changes in government take place.
Table 4: Internal Support required for SMEs to use or extend use of ICT

<table>
<thead>
<tr>
<th>Support provided</th>
<th>Mean</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness building and education in ICT</td>
<td>3.83</td>
<td>30</td>
<td>88.2</td>
</tr>
<tr>
<td>Guidance in overcoming risks associated with</td>
<td>3.65</td>
<td>26</td>
<td>72.2</td>
</tr>
<tr>
<td>implementation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistance with guidelines for appropriate hardware</td>
<td>3.5</td>
<td>26</td>
<td>72.2</td>
</tr>
<tr>
<td>and software</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advice and direction for ICT</td>
<td>3.39</td>
<td>24</td>
<td>66.7</td>
</tr>
</tbody>
</table>

N=number of organizations.

Table 5: External Support required for SMEs to use or extend use of ICT

<table>
<thead>
<tr>
<th>Support provided</th>
<th>Mean</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve computer and internet diffusion in the country</td>
<td>3.97</td>
<td>34</td>
<td>97</td>
</tr>
<tr>
<td>Provide financial assistance to SMEs</td>
<td>3.94</td>
<td>34</td>
<td>94</td>
</tr>
<tr>
<td>Provide tax incentives</td>
<td>3.92</td>
<td>34</td>
<td>94</td>
</tr>
<tr>
<td>Improve national infrastructure</td>
<td>3.88</td>
<td>31</td>
<td>91</td>
</tr>
<tr>
<td>Improve low bank account and credit card penetration in the country</td>
<td>3.82</td>
<td>28</td>
<td>83</td>
</tr>
<tr>
<td>Government and industry associations to take leadership and promotion role</td>
<td>3.71</td>
<td>29</td>
<td>83</td>
</tr>
<tr>
<td>Improve collaboration among SMEs</td>
<td>3.49</td>
<td>24</td>
<td>69</td>
</tr>
<tr>
<td>Enforce suitable software standards</td>
<td>3.46</td>
<td>25</td>
<td>68</td>
</tr>
</tbody>
</table>

N=number of organizations.

The above preliminary results indicate that if the SMEs are provided with the necessary supporting activities, it would facilitate the SMEs in adopting ICT.

IMPLICATIONS

The barriers, both internal; and external predominantly point to the lack of skills and a lack of awareness. Therefore, education and training for the owner/manager can be used to overcome these barriers. Education and training is viewed as being crucial to addressing the lack of readiness of SMEs in adopting and developing their electronic business capabilities (Chau 2001). SMEs are plagued with a plethora of both internal and external barriers. Whether internal or external, all hinder the process of ICT adoption. Legal and regulatory barriers demand direct intervention.
from the government for solutions. Intervention from industry is also important for the provision of external support. The objective of this study was to investigate and determine the significance of the barriers faced by SMEs in adopting ICT and to further investigate the significance of the supporting activities. Determining the barriers and understanding the support SMEs need in order to overcome the barriers is of paramount importance to facilitate take up of ICT. Development of a frame work (methodology) to address this requirement is crucial to facilitate ICT adoption by SMESs.

5. CONCLUSION
SMEs in developing countries are plagued with a plethora of barriers to ICT adoption both internal and external. Another factor that emerged from this study was the level of ICT adoption by SMEs in developing countries.

Research studies on barriers to ICT adoption by SMEs are not common. This study has shown that while SMEs agree that the adoption of ICT is important in today’s business, they are plagued with many constraints, some of which are more specific to developing countries like Zimbabwe. Therefore, the next step is to find ways to overcome these barriers and construct a frame work (methodology that will facilitate the transformation of SMEs by changing the attitudes of owners/managers to appreciate the need to adopt ICT).

This study attempted to provide more in-depth information about the factors that inhibit SMEs from adopting ICT in Zimbabwe. The initial focus therefore, was to ascertain the barriers and to determine supporting activities necessary for SMEs to help facilitate ICT adoption. Currently the existing literature seems to concentrate more on the facilitators and barriers on ICT adoption by SMEs. However, there is inadequate research on strategies for SMEs in developing countries to overcome the barriers and successfully to electronically transform their organisations.

LIMITATIONS AND FUTURE RESEARCH
This study was done in one district out of the 52 districts in Zimbabwe. Therefore the results of this study cannot be generalized to all the other districts in the country. Future research should also consider doing analysis on a national level in order to influence policies. Future research should also consider more research studies on strategies for SMEs in developing countries to overcome the barriers to ICT adoption.
References


