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RESEARCH ARTICLE

DETERMINANTS OF ICT ADOPTION AND USE BY SMALL AND MEDIUM ENTERPRISES: THE CASE OF SMEs IN THIKA MUNICIPALITY, KENYA

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Abstract

Small and Medium Enterprises (SMEs) are perceived as the engine of economic growth in Kenya but face a formidable task of competing and surviving in the global market. Information and Communication Technology (ICT) a major driving force of globalization offer unique opportunities to SMEs, empowering them to participate in the globalised economy. However ICT use in SMES remains low. This study was carried out to investigate the determinants of ICT adoption and use by SMEs in Thika Municipality in Kenya. A cross-sectional survey of 75 SMEs was carried out; stratified random sampling was used to draw the sample from the total population of 240 SMEs. Structured questionnaires were used to collect data which was analyzed using descriptive statistics.

Findings indicated an ICT adoption index of 68 %; mobile phones were the most adopted and used ICT, followed by computers and fixed phones. Most enterprises used ICT for basic applications of communication and office automation. Use of more advanced ICT applications was very low and only 28% of the enterprises had a web page. ICT adoption was more influenced by internal enterprise factors which include ICT knowledge and skills of the manager/owner and employees, identified need for ICT/ perceived usefulness of ICT in the enterprise, availability of funds, type of market and business operations.

The study recommends 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.

Introduction

SMEs play a significant role in the socio-economic development. They are vital for employment creation, income generation, poverty reduction and act as a driver of competition and innovation. They are a prerequisite for development and industrialization. The Government has widely acknowledged the role of the sector in development and has actively formulated policies to stimulate its development. The government has also hinged several of its economic development strategies on SMEs. However the sector continues to face binding constraints that hinder it from realizing its full potential. The constraints include; limited access to information and markets, inadequate access to skills and technology, limited access to finances among others. (GOK, 2005; GOK, 2007) Trade liberalization and globalization have opened new opportunities for the sector as well as created new competitive pressures. Despite government intervention, applied measures seem not to have yielded the expected impact and the productive sections of the sector have stagnated. (KIPPRA, 2002) Problems that inhibit the growth of the sector continue to persist after being recognized. The sector is threatened by stiff competition from large enterprises, poor access to information on markets, production technology, customer trends, and limited production technology leading to low quality goods. (GOK, 2005)

On the other hand, ICT offers many opportunities for the growth and survival of SMEs even though adoption remains low mostly limited to telephony. Great potential exists in e-commerce for the sector to harness for market expansion. (Mansell & Wehn, 1998) SMEs can exploit computer based information systems and knowledge based systems to improve production and management of their enterprises. ICT can greatly improve communication channels for SMEs with their customers, suppliers, and other stakeholders. ICT holds a lot of potential that can be harnessed to address the sector challenges that have persisted for long.

Statement of Research Problem

The importance of ICT as an enabler to other sectors and to economic development has long been recognized and yet SMEs seem slow in its adoption and use as compared to other sectors. Whereas there has been growth in ICT use by large enterprises to gain a competitive edge, there is little evidence of its adoption and use by SMEs which continue to be faced by limited access to information and markets. Studies on SMEs indicate a low ICT adoption and use limited to telephony, while computer use especially e-commerce remains low. SMEs rarely use ICTs as business tools, yet they hold a lot of potential in improving access to information and markets. (Mansell & Wehn, 1998) Ironically, SMEs are considered to be better placed to respond to and adopt change and technology because of their perceived flexibility.(Ritchie, 2005).It is therefore surprising that evidence (Small bone et al, 2001; Dawn et al, 2002; Houghton and Winklhofer, 2004) relating to ICT adoption by SMEs suggests a slow response and limited progression. The expectation that SMEs might progress like large organizations in ICT adoption has not been the case. (Preece, 2000) This study therefore sought to investigate the determinants of ICT adoption and use by SMEs in Kenya to provide the necessary information for enhanced adoption and use. Improved SME competitiveness as a consequence of ICT use is expected to translate to improved economic development.

OBJECTIVES

The overall objective of the study was to determine the degree of ICT adoption and to investigate the factors influencing its use by SMEs.

JUSTIFICATION OF THE STUDY

The SME sector makes up a large proportion of the Kenyan economy and has been identified by the government as one of the vehicles of economic development. The sector is a key contributor to job creation, diversification of economic activities, GDP contribution, stimulation of innovations and invention. Globalization whose hallmark is ICT has brought about opportunities as well as challenges for the sector. Since SMEs operate in a globalised economy, adoption of ICT is a must if they are to remain competitive and survive stiff competition. The trend in the world economies is bent towards the use of ICT for increased competitiveness, yet SMEs lag behind. Research on factors influencing ICT adoption is important in providing a basis for enhanced use to enable SMEs realize their full potential and remains an effective vehicle for economic development.

LITERATURE REVIEW

SMEs in Kenya

In Kenya, enterprises are classified by the number of permanent employees engaged in the enterprise. Accordingly, Small and medium enterprises are defined as non – primary enterprises (excluding Agricultural production, animal husbandry, fishing, hunting, gathering and forestry) that employ 5- 99 fulltime employees. (KIPPRA, 2002; National Baseline survey, 1999) Small scale enterprises employ 5-49 employees while medium enterprises employ 50-99 fulltime employees.

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

ICT refers to the range of technologies for gathering, storing, retrieving, processing, analyzing and transmitting information. (Ritchie & Brindley, 2005) ICT is viewed as a key driver of productivity, growth and economic progress and is an essential component in the pursuit of a high value, knowledge based economy. It can improve efficiency and increase productivity through; improving resource allocation, reducing transaction costs and enabling technical improvement, leading to the outward shift of the production function. (GOK, 2006) ICT may assist economies in accessing information and knowledge to accelerate growth and reduce transactions costs, enables communication and empowerment. (Evans & Wurster 1997, Pohjola 1998) In a developing country like Kenya where transaction costs are very high, ICT can improve the efficiency of markets and reduce transaction and coordination costs within and across organizations. ICT facilitates business networking between enterprises and geographical regions providing a platform for the exchange of experiences, options and opportunities for mutual cooperation and technology transfer. (GOK, 2006)

The availability of ICT in the business sector has several economic and social implications. Investment in ICT contributes to economic growth by making firms more productive; ICT makes firms more

competitive, network ready and able to exploit new trading opportunities such as E-commerce. Availability of ICT in business also has a social dimension with many workers developing ICT skills and access to the internet through their workplaces. (OECD, 2001; Minges, 2003)

ICT ADOPTION AND USE

Different SME researchers consider different factors to influence IT adoption. Use of ICT by SMEs may vary as will their preparedness to respond to technological change. According to Ramsey et al 2004, the structure and size of SMEs make the obstacles they face unique. However SMEs are believed to be generally better positioned to respond and adopt to change. They are considered more flexible in terms of their structure, systems and processes. (Ritchie & Brindley, 2005)It is therefore surprising that evidence (Small bone et al, 2001; Dawn et al, 2002; Houghton and Winklhofer 2004) relating to ICT adoption has suggested a slow response and limited progression(Ritchie & Brindley, 2005). The expectation that SMEs might emulate large organizations in progressing through the stages of ICT adoption has proved otherwise. (Preece, 2000)

According to Gibbs, 2006 the following factors in table1 below influence ICT adoption

Table I: Factors that Influence ICT Adoption by SMEs

Key Attribute	Measures
Organizational/ Enterprise	Size, Type, Nature of business, IT Skills & knowledge, financial status
Manager/ owner	Top Management knowledge, Support & Attitude
Adoption	Relative advantages, Compatibility, Observability, Complexity
Competitive environment	Business environment, suppliers, competitors, customers
Governmental	National policies on taxes, labour, trade, regulation, prices

Rogers (1995) suggests that the adoption of innovation is positively correlated with business size, the manager/owner's characteristics and the competitive environment. Individual characteristics of the owner such as education, Age, experience, and psychological traits strongly influence innovation adoption and play an essential part in ICT adoption by SMEs

According to Migiro & Ocholla (2005), SMEs lack technical expertise and adequate capital to undertake technical enhancements and suffer from inadequate organizational planning. They tend to have a small management team (often one or two individuals) and are strongly influenced by the owner and the owner's personal idiosyncrasies, have little control over their environment and have a strong desire to remain independent. (Mpofu, 2007) These characteristics strongly impact on their readiness and willingness to adopt technologies including ICTs.

According to the theoretical Framework by Lal & Peedoly (2006), adoption of new technologies could be influenced by several independent factors that are mutually reinforcing. These factors include; entrepreneurial abilities of owner, potential benefits of the new technology, learning opportunities for effective use, competitive environment, and affordability of new technologies.

Knowledge base and Characteristics of Managers/ owners

Decision-making in majority of SMEs is centred on the owner/manager. As a consequence, the personal characteristics and knowledge base of the owner/manager has a significant impact on technology adoption of the enterprise. The Manager's/ owners academic qualification has been known to influence ICT adoption, the higher the academic qualification the more likely the firm is to adopt and use ICT. Managers/owners who have ICT knowledge and skills are also more likely to adopt and use ICTs as compared to their counter-parts who lack ICT knowledge and skills. The perception of the owner/manager of technology in this case ICT is also significant in determining adoption. Where the manager views ICT as not useful, complex and hard to use, the likelihood of adoption is very low as opposed to where the owner perceives ICT as useful, not complex and learnable. Age of the owner/manager also influences ICT adoption, the younger the manager the more likely to adopt ICT as compared to older managers. Age also influence ICT skills and knowledge as younger people are more likely to have ICT skills compared to older ones and are also more ready to learn new skills as compared to older people.

Characteristics of Firms

Several factors related to the characteristics of the organization affect adoption of ICT. Lal (2007) suggests that size plays a critical role in the adoption of new technology. It is also hypothesized that older firms might adopt more advanced technologies. Smaller SMEs operating from one office and primarily serving a local/regional market whose decision-making rests solely on the owner/manager have a less compelling need for ICT and less likely to adopt the technologies while larger SMEs with several offices, serving several markets including international markets with decision- making resting on several directors have a more compelling need for ICT and are therefore more likely to adopt ICT.

Competence based theories suggest that a firm's ability to acquire, assimilate and exploit new technology (Absorptive capacity) is directly influenced by their portfolio of Human resources (Berranger and Windrum, 2003).The total number of employees, their education level and knowledge of ICT especially computer, greatly influences whether a firm adopts ICT. The business activity of the firm also influences ICT adoption. Firms offering services are more likely to adopt ICT as compared to Retail and wholesaling firms.

Other firm factors that affect adoption include current level of technology usage within the organization, level of awareness; uncertainty about the benefits of ICT; firm's financial resources; and, concerns about security, level of ICT use by customers and suppliers, concerns about legal and liability aspects, costs of development and computer and networking technologies.

Impediments in ICT Use

SMEs are hindered from adopting ICTs due to impediments that arise within and without the firm. These barriers can be broadly categorized into Internal and External (Alampay, 2007)

Internal Barriers:

SME adoption of ICT is heavily influenced by factors within the organization which the firms have control and ability to change. These can categorized into Individual owner/manager), organizational barriers and cost and return on investment. Lack of access to computers, software, other hardware, and telecommunications at a reasonable cost; low ICT use by customers and suppliers; concerns with security and legal issues; low knowledge level of management and employees; and lack of knowledge and awareness about the benefits of ICT, lack of exposure to IT products and services, and lack of staff with IT capability, are major organizational factors that inhibit ICT adoption. (Lawson & Mahesha, 2006)

External barriers cannot be resolved by SMEs i.e. they have no control over them and are compelled to work within the constraints. These may be inherent to developing countries where they are more pronounced than in developed countries. They include; lack of telecommunications infrastructure, lack of qualified staff to develop and support e-commerce sites, lack of skills among consumers needed in order to use the internet, lack of timely and reliable systems for the delivery of physical goods, low income, and low computer and internet penetration, poor internet connectivity, lack of fixed telephone lines for end user dial-up access, an underdeveloped state of Internet Service Providers and lack of developed legal and regulatory systems.

Perceived Benefits of ICT Use

Benefits from ICT use can be categorized into productivity gains and efficiency in business. (Lal, 2007) concluded that the use of advanced ICTs induced efficiency and higher productivity in business transactions. Perception of managers/ Owners about the benefits of ICT use might also result in different levels of ICT adoption. While it is widely acknowledged that ICTs are beneficial to any Organization and more so to SMEs ,there seems to be a perception among many owners of SMEs that there is a lack of business benefit from the adoption of some ICTs. (Migiro & Ocholla, 2005)

RESEARCH METHODOLOGY

To attain the research objectives, across sectional survey of SMEs in Thika Municipality was carried out to collect data on the levels of ICT adoption and the factors influencing the adoption and use. Adoption and use of ICT by the SMEs was the dependent variable while factors influencing adoption and use were the independent variables. The Target population was enterprises in Thika municipality that employ 5-99 full-time workers. The sampling frame was a list of registered SMEs in Thika municipality from the Municipal Council of Thika. Thika municipality has approximately 240 registered SMEs from the Municipal council of Thika, Business register, 2007). A sample was selected using stratified random sampling based on the size and subsector. Enterprises were classified as either small or medium and to be in manufacturing and processing, retail and wholesale and the service subsectors.

Structured questionnaires were used for data collection and were administered by the researcher

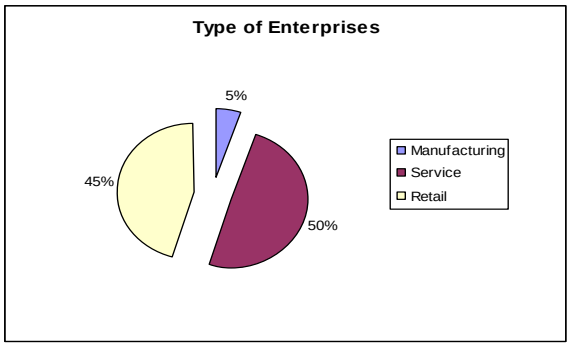
with the assistance of a research assistant to the managers/owners of the enterprises. Descriptive statistics were used to describe the data collected from the research. These included the frequencies, mean and standard deviation. Measures of central tendency were used to determine the mean score from a group of scores in the study. SPSS computer package as well as Microsoft excel were used in analysis. Weighted mean was also used where variables were consolidated to give us a more accurate picture of ICT adoption in relation to variables that influence adoption from previous studies.

RESULTS AND DISCUSSION

The survey response was 97.3 % from the questionnaires send out.

Enterprise profile

Figure 1: SMEs in the Survey as distributed in Subsectors



Size of Enterprise and Age of Enterprises

Size of Enterprises in the survey is based on the number of permanent employees. Majority of SMEs in the survey were small with permanent employees ranging between 5 and 49 (90.8%) while a very small proportion; 8.2 % constituted of medium enterprises with 50 -99 employees. 41.1% of Enterprises, were 10 years and above, while 34.5% were 3- 10 years and 24.7% were 1-3 years old.

Average level of Education and ICT Knowledge and Skills for Employees

64.4 % of employees in the Enterprises had tertiary education, 34.2 % secondary and 1.4% had primary education. 56.2% of employees had average ICT knowledge and skills, above average constituted 21.9%, below average 20.5% while those with none comprised 1.4%.

Primary Markets for Enterprises

46.6% of the enterprises indicated they served regional markets while 37% served local markets, 12.3% served national markets while only 4.1% serve international markets. The types of market served by the enterprises correlated to the size of the enterprises.

Manager/Owner Characteristics

36.8 % of owners were aged 40- 50 years, 26.5 % were between 30- 40 years and above 50years old and only 9.6% were 30 years and below. 86.35% of managers/owners had tertiary education, while 9.6 % had the highest level of education as secondary. 4.1 % of respondents did not respond to this question. 59.2% of managers/owners had basic ICT knowledge and skill with average experience. 32.4 % said they had specialized/ advanced ICT knowledge and skills and 8.5% had none. 87.7 % of respondents perceived ICT as being very useful and 68.5 % felt it was fairly complex but could be learnt compared to 12.3% who felt it was complex and hard to use and 19.2 who felt it was simple and easy to use. 36.1 of managers/owners perceived ICT as being costly, 29.2 % perceived ICT as being affordable, while 26.4 % perceived it to be very costly. 8.3 % did not know the cost of ICT.

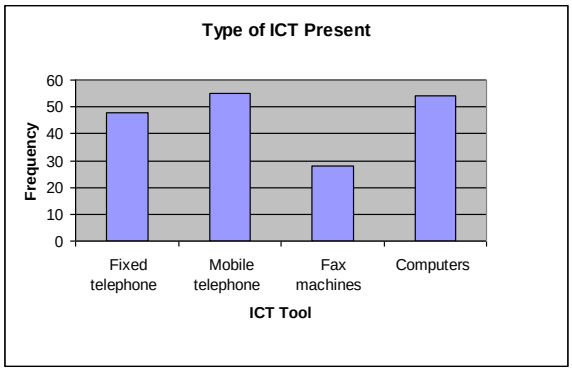
ICT Adoption and Use

ICT adoption and use was measured by the type of ICTs an enterprise had and the type of ICT applications and frequency of use.

Type of ICTs present in an Enterprise

78.6% had mobile phones, 77.1 % had computers, 68.6 % had fixed telephones and 40% had fax machines.

Figure 2: Distribution of Different types of ICT



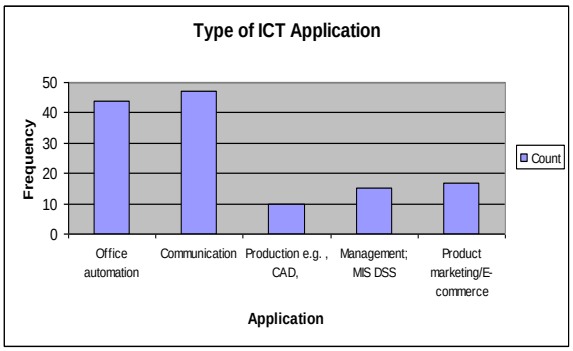
Frequency of ICT Use

The most frequently used ICT tool was the Mobile phone with 84.1 % rating their use as very frequent, followed by computers with 66.1% rating their use as very frequent, the fixed phone whose use was rated as very frequent by 62.5% and the least frequently used was the fax machine with only 27.1% rating its use as very frequent.

Type of ICT Applications

Most of the enterprises used ICT for basic applications namely communication and office automation with very few using ICT for production systems, management and marketing as shown in the figure 3 below:

Figure 3: Type of ICT Applications in the enterprises



Enterprises with a web page

This can be considered as a sign of advanced application of ICT by the enterprises. Responses as indicated that only 28% had a web page while the rest, 72% did not have.

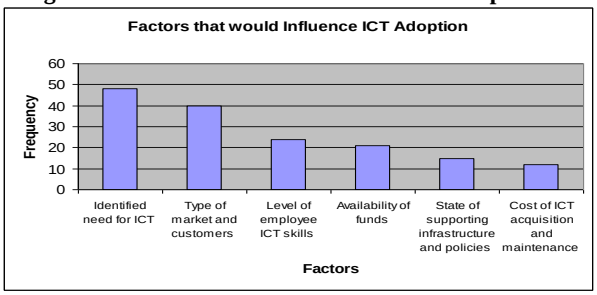
Perceived Benefits of ICT

Majority, 64.4% of the enterprises thought ICT improves access to information, followed by increasing internal efficiency 63%, improving competitiveness39.7% and lastly 35.6% thought it increased sales.

Factors that would Influence ICT Adoption

Identified need was rated highly with 65.8% of enterprises indicating that it would influence ICT adoption, followed by type of market and customers for goods and services with 54.8 %, level of employee ICT skills with 32.9%, availability of funds with 28.8%, state of supporting infrastructure and policies in that order with 20.5%. Cost of ICT acquisition and maintenance was rated last with 16.4%.

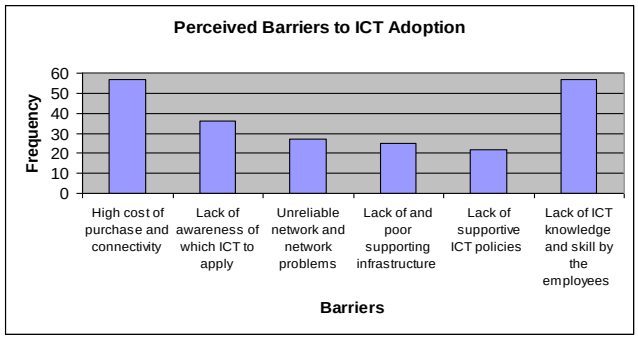
Figure 4: Factors that will Influence ICT Adoption



Perceived Barriers to ICT adoption

High cost of purchase and connectivity as well as lack of ICT knowledge and skills by the employees was rated as barriers by most of the enterprises followed by lack of awareness of which ICT to apply

Figure 5: Perceived barriers to ICT Adoption



Factors that would encourage ICT adoption

Adapting to technology was rated highest by 65.3% of the enterprises, followed by reduced cost of ICT with 63.9% of the enterprises, ICT training and awareness with 54.2 %, and availability of credit and favourable ICT policies with 25 %.

Adoption Index and Adoption Depth

ICT adoption and use was measured using the adoption index and adoption depth. This was necessary because the mere presence of ICTs in an enterprise doesn't guarantee its use. The two helped in consolidating the different variables in a given enterprise for data analysis and are based on weighted means.

Adoption Index

Adoption Index as a measure of ICTs was derived using the weighted mean. ICTs under consideration were given weights based on their perceived cost and ease of use. Those considered very costly and hard to use were given a higher weight as compared to those considered affordable and easy to use. The variables were weighted on a scale of one to five with five being very costly and hard to use and one being affordable and easy to use.

Table II: Weighting ICT

ICT	Weight
ICT 1 - Mobile phone	1.0
ICT 2 - Fixed phone	1.0
ICT 3 - Fax Machine	2.0
ICT 4 - Computer	5.0
Total	9.0

Adoption Index was calculated as;
Adoption Index = weighted mean of the variables *100

Adoption Index

$$= \frac{\text{ICT 1(1) + ICT 2 (1) +ICT 3 (2) + ICT 4(5)}}{9} * 100$$

Depth Index

Depth Index as a measure of ICT was based on the ICT applications used in the enterprises and on the assumptions that some applications were simple and easy to use compared to others. The Applications were weighted based on perceived degree of simplicity in their applications and perceived cost. ICTs applications in the enterprises include communication, office automation, marketing, management and production.

Table III: Weighting ICT Applications

ICT Application	Weight
Application 1 - Communication	1.0
Application 2 - Office Automation	4.0
Application 3 - Management	5.0
Application 4 - Production	5.0
Application 5 - Marketing	5.0
Total	20.0

Adoption Depth Index = Weighted Mean of Variables/ Total * 100

Depth Index =

$$\frac{\text{(App.1 (1) +App.2 (4) + App.3 (5)5 + App.4 (5) + App.5 (5)}}{20} *100$$

Generally, adoption index highly varied from enterprise to enterprise, from 11.11 as the minimum to 100 %. The average adoption Index for the enterprises was 68 % .The highest depth index for the enterprises is 70 with a frequency of 8, while the lowest is 5%. The average depth index is 31% which is well below average.

Several factors were considered to influence ICT adoption. The study sought to establish the relationship between Adoption Index and Depth index which measures ICT adoption to these factors from the survey results and some relationships between the factors and the adoption index and depth index were noted.

Size and Age of Enterprise

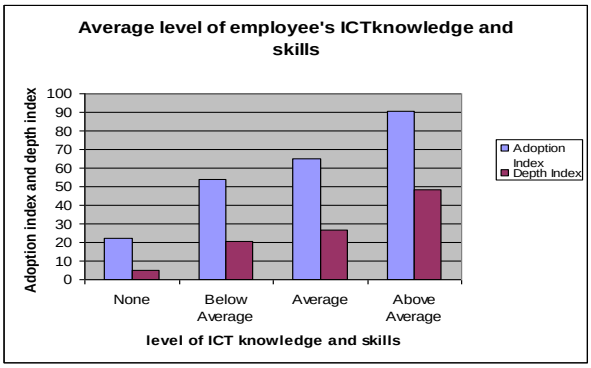
Medium enterprises with 50-99 permanent employees had the highest adoption index of 76, while small enterprises with 5-9 employees had an adoption index of 68 and enterprises with 10 -49 employees with an adoption index of 66. Adoption index increased with the age of the enterprise. Enterprises that had been in operation for over 10 years had the highest Index of 74 followed by those that were 3 -10 years with an index of 64 and lastly those that had been in operation for 1-3 years with an index of 62. However, depth index was highest, 28 for enterprises that had been in operation for 1-3 years.

The service Industry had the highest adoption index of 71.2 followed by the retail subsector with an index of 65.27 and lastly manufacturing had the lowest index of 63.8. On the other hand, the manufacturing sub-sector had the highest depth index of 35 followed by the service subsector with a depth index of 32.7 and lastly the retail and wholesale subsector with an index of 25.6.

Average Level of Education for the Employees

From the survey, adoption and depth indices corresponded with the level of education and ICT skills and knowledge. The indices were high for enterprises that had a higher average level of education and ICT skills and knowledge

Figure 6: Adoption and Depth index Vs Employee's level of ICT Skills and Knowledge



Enterprise' Financial Status

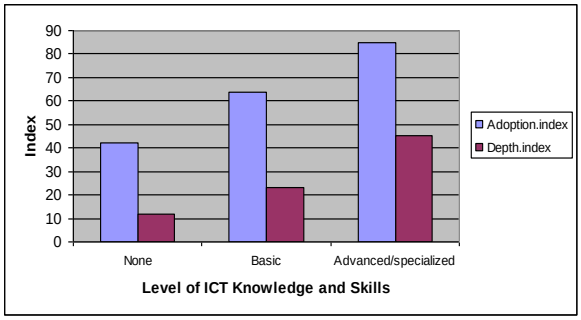
Financial status didn't have a direct bearing on the adoption index but affected the depth index. Enterprises that described their financial status as good had a higher depth index than those that described their financial status as bad or fair. Enterprise's annual turnover had a positive influence the adoption index with the exception of enterprise with less than 10,000 as annual turnover which has a frequency of 1. Depth Index also increased with an increase in annual turnover.

Owner/ Manager Characteristics

Adoption Index and Depth Index were higher for enterprises where the owner manager had a higher level of education. For managers with tertiary education, the adoption index was 69.8 and depth index 31.7 while those with secondary education had an adoption index of 52 and depth index of 23.6. Adoption Index was higher for owners who are older,

above 50 years as compared to younger ones below 50. However depth index seems higher for younger owners at 37 who are 30 years and below. Adoption index for owners aged above 50 years was 74, for those aged between 40 to 50 years were 70, those aged between 30 and 40 years was 63 and for owners aged below 30 years was 60. Adoption index is higher for enterprises whose manager/owners have specialized/ advanced ICT knowledge and skills as compared to those with none or who had basic skills. The depth index also corresponded to the manager/owner ICT skills. Managers / Owners who felt ICT was complex and hard to use had a lower Adoption index and depth compared to those who felt it was simple and easy to use or it is fairly complex but can be learnt.

Figure 7: Manager/ owners ICT skills versus Adoption Index and Depth Index



DISCUSSIONS AND RECOMMENDATIONS

Survey findings based on the adoption index indicate ICT adoption by SMEs in Thika Municipality was above average. This is higher than the expectations based on literature review that indicated that ICT adoption in SMEs was low. Even though the adoption index is high, the depth index is very low implying SMEs only applied basic ICTs applications that may not be sufficient to address the challenges faced by the sector, hence the need to enhance ICT adoption and application to a higher level. The studies showed that even within the SMEs, the larger SMEs had a higher adoption index compared to the smaller SMEs. This therefore suggests a gap in ICT adoption across enterprises based on their size.

Literature review suggested that various factors could influence ICT adoption by SMEs and the factors could be grouped into external factors e.g. supporting policies and infrastructure, and internal factors which are basically the enterprise characteristics and owner/manager characteristics and this was supported by findings of this study. A significant finding from the survey showed that ICT adoption was to a great extent influenced by internal factors to the enterprises as compared to external factors. Internal factors influencing adoption were; the size and age of the enterprise, the level of education and ICT knowledge and skills for the employees and owner, type of business operations, owner's attitude to ICT and financial status of the enterprise. On the other hand external factors could also have had a big influence on ICT adoption and use by the enterprises but the respondents may not be familiar with ICT and other related policies that affected ICT adoption hence they dwelt on the internal factors that are very clear and familiar to them. Never the less, policies can still be used to address internal factors that limit ICT adoption by SMEs. High frequency of mobile phones can be attributed to the lower cost of the mobile phones and maintenance charges as compared to the other ICTs. The high frequency of computer can be explained by the fact that computers can be used for many purposes which include automation of operations, communication, management, production etc. as compared to other ICT s, which have a single purpose. Many enterprises that could afford them could have adopted them because they perceived them as very useful to the enterprises. The low frequency of fax machines can be explained by the fact that many people perceive them as complicated and don't know how to use them. They are also more costly than the phones and not as efficient as the computer in communication.

Recommendations

It has been noted that ICT adoption and use by SMEs was largely influenced by factors internal to the enterprise, it follows that efforts to enhance adoption should be focused on the internal factors. Top on the factors that the survey showed to influence adoption and use were; perceived need for the ICT, level of education and ICT knowledge and skills and cost of purchase and connectivity.

The following are the study's recommendations

1. There is need to step up awareness creation on the role of ICT in Enterprises by government and various stakeholders among SMEs and the local public. This needs to be included in the national ICT strategy and government programmes in the ICT secretariat
2. ICT training should be emphasized in schools and other training institutions as this has a positive correlation on the adoption and use of ICT. This will improve the general levels of ICT skills and Knowledge. Training forums on ICT for SME owners, managers and employees should be encouraged by the government and individual firms.
3. Government policies should enhance ICT adoption and use by addressing the internal limiting factors to SMEs which include access to

finance; reducing the cost of ICT tools and applications through subsidies and tax incentives. The government needs to come up with subsidized training programmes on ICTs for the SME sector to impart the required skills and knowledge. Policy considerations need to address enterprise characteristics, owner characteristics and as well as the business environment.

4. The government through its relevant arms needs to encourage and facilitate linkages between SMEs and large enterprises, and learning and research institutions for knowledge and technology transfer.
5. There is need for ICT providers to develop customized ICT applications for SMEs considering their unique characteristics and challenges. These applications should be affordable, focus on their operations, offer solutions to their problems and easy to use. There is need to develop more mobile based ICT applications because these are the most owned and frequently used ICT by the SMEs

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