



**Relationship between use of
Information Communication Technologies (ICT)
and the performance of small enterprises in Kisumu city**

*James Ochieng Ogalo, Charles Nyangara Asaka, and Fredrick Onyango Aila

Full Length Research

Relationship between use of Information Communication Technologies (ICT) and the performance of small enterprises in Kisumu city

James Ochieng Ogalo¹, Charles Nyangara Asaka², and Fredrick Onyango Aila³

¹Lecturer, Kenya Institute of Management, Tel: 0721622234, E-mail: jamesogalo@yahoo.com.

²Lecturer, Kisumu Polytechnic and Adjunct Lecturer, Great Lakes University of Kisumu (GLUK), Tel. 0723040846, E-mail: nchali06@yahoo.com.

³Lecturer, Department of Agribusiness Management, Great Lakes University of Kisumu, Tel. 0722314765, E-mail: onyango@yahoo.com.

Accepted 30th September, 2011

Information communication technologies (ICT) offer options for developing and improving products to achieve a competitive edge in the marketplace. ICT is a key driver of business strategy and its efficiency and effectiveness is priority if survival and growth are critical to the enterprise. There seems, however, a challenge in its adoption and utility in developing economies. The reported study aimed at assessing the relationship between ICT adoption and the performance of small enterprises in Kisumu City. A survey of 144 small enterprises out of a population of 481 was conducted in this regard using questionnaires and interviews. Chi-square test (χ^2), a statistical technique, was used to test the association between ICT adoption and small enterprise performance. The study found that over 50% of respondents had adopted ICT, though the adoption rate was relatively slow. There was a statistically significant association between ICT adoption level and business performance at level 0.05 ($\chi^2 = 27.22$; $df = 9$; $p = 0.05$) and the χ^2 critical value at 0.05 is equal to 16.919 from the study results. This confirms that ICT adoption level is highly associated with business performance and forms an essential ingredient for the success of the organization. Critical areas to be addressed by the Government of Kenya may include formulation of solid policies and procedures focusing on accessibility, security and use of ICT by small enterprises in order to optimize its benefits. The study has managerial and policy implications.

Key words: Information Communication Technologies, ICT, Adoption, Kisumu City, Kenya, Small Enterprises.

INTRODUCTION

The combination of skilled people and advanced information technology has revolutionized business and commerce and altered the concept of management (Frenzel and Frenzel, 2004). Management concerns then are to find application of technology to automate the flow of information in an organization's information system. The term information technology (IT) and Information Communication Technology (ICT) are often used interchangeably. ICT is defined as any technology used to support information gathering, processing, distribution and use (Beckinsale and Ram 2006). This covers all

forms of technologies such as computers, Internet, websites as well as fixed-line telephones, mobile phones and other wireless communications devices, networks, broadband and various specialized devices (Manueli, Latu and Koh, 2007). ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form. For example, personal computers, digital television, email, robots. Importantly, it is also concerned with the way these different uses can work with each other. ICT therefore, is an umbrella term that includes any communication device or application,

encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. It is an ingredient which when used accelerates business performance.

ICT adoption offers the alternative between success and failure of an organization in today's highly competitive and technological business world. The use and integration of ICT into the business mainstream, has revolutionized and changed business dimension. As noted by Curtis and Cobham (2008), impact of information technology has reshaped the types of work involved within organizations. Frequently those with skills for previous jobs do not have the skills appropriate for the new technology. Many organizations have developed policies to provide the retraining necessary to enable employees to move internally. The growth of information and communication technologies has exploded in recent years, considering that the number of subscribers to mobile phone services surpassed the number of fixed-line subscribers in 2002, and cellular has become the dominant technology for voice communications (Broadbent and Weill, 1999). Internet browsing by mobile phones is also growing throughout the world as cell phone penetration increases.

The growth of wireless voice communications and their increasing integration with internet technologies generates opportunities for further innovations and applications. For example, location-based wireless technologies already aid police and parents in protecting children from kidnapping and other crimes. Multimedia messaging services (MMS) and streaming mobile video raise exciting possibilities for more person-to-person services and even personalized entertainment (Ferrell, Hirt and Ferrell, 2008). Further, companies need a strategic framework that can bridge the gap between simply connecting to the internet and harnessing the power for competitive advantage. The most valuable internet applications allow companies to transcend communication barriers and establish connections that will enhance productivity, stimulate innovative development, and improve customer relations (Cronin and Mary, 1996).

Small enterprise (SE) usage of ICT ranges from basic technology such as radio and fixed lines to more advanced technology such as email, e-commerce, and information processing systems. Four categories of usage can be identified. First is basic communications including fixed line/mobile, phone, and fax. Secondly is basic information technology which is specified as personal computer (PC) equipped with basic software and hardware (e.g., PC with proprietary and/or free and

open-source software connected to a printer. Third is advanced communications including E-mail, Internet browsing, video conferencing, intranet, file sharing, creating websites, e-commerce, voice over internet protocol. Lastly is the advanced information technology PC with advanced software such as databases, enterprise resource planning (ERP), inventory management, customer relationship management (CRM) (Manueli et al 2007).

Using advanced ICT to improve business processes falls into the category of e-business. However, not all SEs need to use ICT to the same degree of complexity. The first ICT tool that most SEs adopt is having basic communications with a fixed line or mobile phone, whichever is more economical or most convenient for their business. This allows the SE to communicate with its suppliers and customers without having to pay a personal visit. After acquiring basic communication capabilities, the next ICT upgrade is usually a PC with basic software. Even without internet connectivity, SE can use PCs for basic word processing, accounting, and other business practices. With the internet, SE are able to use more advanced communications capabilities such as email, file sharing, creating websites, and e-commerce. This may be sufficient for most SEs, especially those in service industries such as tourism. SEs in manufacturing may adopt more complex IT tools such as ERP software or inventory management software. SEs may adopt the tools progressively or jump immediately to advanced ICT capabilities.

The effective implementation of information technology can result in decrease in liability through cost reduction. This further reduces the risk of business failure and increases flexibility by reducing the cost of adjustment. The capabilities and flexibilities of computer-communication systems make them perfect choices to respond to businesses dilemma thus improving effectiveness and efficiency in the enterprise.

There is a general agreement that the use of IT in business operation improves business quality through continuous improvement. With regard to the impact on the production process as a whole, the use of ICT improves the competitiveness of firms making it possible for them to increase their market share by becoming leaner than their competitors. The use of ICT also helps firms to expand their product ranges, customize the services they offer and/or respond better and quicker to customer demand. The use of ICT also makes it much easier for firms to outsource and even offshore many of its activities and instead concentrating on its core business and core competence (Cohen, Garibaldi and Scarpetta, 2004; Pegels and Carl, 1995).

Technology is no longer an afterthought in forming business strategy, but the actual cause and driver

Table 1: Selected small enterprises

Strata	No. of small enterprises	Sample No. of small enterprises	Percentage of No. of small enterprises
Zone seven (7)	310	93	19%
Zone Eight (8)	171	51	11%
Total	481	144	30%

Table 2: Level of Adoption

Level of adoption	No. of enterprises
Basic communication	144 (100%)
Basic information communication technology	138 (96%)
Advanced communication	97 (67%)
Advanced information communication technology	88 (61%)

Source: Survey.
ICT adoption by category

(Kalakota and Marcia, 1999). Melymuka and Kathleen (1999) have noted that Information Technology is the bloodstream that feeds the business process. Information technology penetrates more deeply into all business processes and helps to create many new businesses. Therefore the need for development of an efficient and effective computer based information system is of utmost priority if survival and growth of the enterprise is to be realized. Despite the adoption of ICT systems by small enterprises, there seem to be inherent challenges in its adoption and utility towards enterprise growth. In as much as several studies have been conducted in other parts of the world, there is little research conducted on this area in Kenya and more so in Kisumu. This study examined the presence of any relationship between these inherent challenges in ICT adoption and performance of small enterprises in Kisumu City.

The general study objective was to examine the relationship between information communication technology adoption and performance of small enterprises in Kisumu City. Specifically the study sought to: find out the number of SEs that have adopted ICT in their businesses; identify the level of ICT adoption by small enterprises in Kisumu city; and establish the relationship between ICT adoption and SEs performance in Kisumu City.

METHODOLOGY

The study was conducted in Kisumu City, the headquarters of Nyanza Province, western Kenya. The city third largest in Kenya. Kisumu is located on the Lake Victoria port and is the second most important town after Kampala within the lake region. It is also an important economic hub for most trade conducted in the East Africa region. Its estimated population is about 665,018 people (KNBS, 1999).

A survey research design was used to conduct this study (Mugenda and Mugenda, 2003). The target population consisted of

481 small enterprises in Kisumu City Central Business District (MCK, 2010) (see Fig. 1. below). Small enterprises according to the study are enterprises employing between five and 20 people. A sample size of 144 small enterprises was selected representing 30% of the target population. The sample size was determined according to Yamane (1967:886) formula for sample size determination. The sample was grouped into two strata namely Zone seven (7) and Zone eight (8) as illustrated in table 1.

Purposive sampling technique was then used to select five directors of small enterprises for in-depth interviews. The intention of the interviews was to shed light on a range of issues of interest to the study. Open and closed ended questionnaires were used to collect data.

The data collected were coded, tabulated and analyzed using descriptive analysis for measures of central tendency and inferential analysis methods to draw conclusions concerning relationships and differences found in the research results. Chi-square test (χ^2) was used to compare and to test dependence. The chi-square test enables the researcher to explain whether or not two attributes are associated (Kothari, 2008).

RESULTS AND DISCUSSION

Level of Adoption

This study assessed and analyzed the findings in terms of four (4) categories of the adoption of ICT level namely: basic communication category, basic information communication technology category, advanced communication category, and advanced information communication technology category. The level of adoption is presented in table 2. It is evident that all the small enterprises had adopted basic communication as a means of communicating reports and transactional requirements. The other categories had varied degrees of adoption.

Basic communication

Adoption of ICT was analyzed according to the elements of basic communication. The results were presented in the table 3. Findings show that all respondents use

Table 3: Elements of basic communication

Elements of Basic Communication	No. of respondents
Fixed line	106 (74%)
Mobile	144 (100%)
Fax (facsimile)	43 (30%)

Source: Survey

Table 4: Elements of information technology

Elements of Information Technology	No. of Respondents n=138
Msoffice suite software	138 (100%)
Word processing (WordPerfect, WordStar and so on)	6 (4%)
Spreadsheet (Quattro pro, Lotus Suite and so on)	3 (2%)
Accounting (QuickBooks, Systematics, Sage, Sun and so on)	103 (75%)
Publishing software (PageMaker, Ventura, CorelDraw and so on)	82 (59%)
Other standard software	67 (49%)

Source: Survey

Table 5: Elements of Advanced Communication

Elements of Advanced Communication	No. of respondents n=97
E-mail	97 (100%)
Internet Browsing	74 (76%)
Video Conferencing	15 (15%)
Intranet	20 (21%)
File sharing	43 (44%)
Creating Websites	17 (18%)
E-commerce	11 (11%)
Voice Over Internet Protocol	3 (3%)

Source: Survey

mobile phones as a way of communication. Fixed telephone lines and fax (facsimile) were used by 106 (74%) and 43 (30%) of the firms respectively. Mobiles phones were most popular probably because they have a very high penetration in Sub-Saharan Africa due to their connectivity, mobility, security, affordability and only require basic literacy to operate (Donner and Tellez, 2008; Doner, 2006; Weverman, Meloria and Fuss, 2005; Rashid and Elder, 2009). They are unique platforms for providing real-time business information.

Basic information technology

This category had 138 respondents representing 96% of the total number of respondents sampled for the study as shown in table 4. Results show that all of the small enterprises had personal computers (PCs) equipped with basic standard software. Only 82 (59%) of the respondents had publishing software and only 3 (2%) owned spreadsheet software. A total of 103 (75%) respondents had installed an accounting software and

only 67 (49%) operated other standard application software installed in their system. The fact that all the small enterprises had personal computers (PCs) equipped with basic standard software supports Gates (1999) assertion that difficult business problems always have many aspects. Often a major decision depends on an impromptu search for one or two key pieces of auxiliary information and quick adhoc analysis of several possible scenarios. The small scale entrepreneur needs quick access to data for quick decision making.

Advanced Communication

The number of respondents in this category were 97, representing 67% of the total number of respondents sampled for the study as shown in table 5. Results show that all small enterprises (100%) used E-mail, 74 (76%) used internet Browsing while 43 (44%) used file sharing to conduct business transaction and communication. Very few small enterprises utilized superior communication elements such as video conferencing 15 (15%), intranet

Table 6: Elements of Advanced Information Communication Technology

Elements of Advanced Information Communication Technology	No. of respondents n=88
Database Management System	85 (97%)
Enterprise Resource Planning	3 (3%)
Inventory Management Software	21 (24%)
Customer Relationship Management	3 (3%)
Other In house Developed Software	79 (90%)

Source: Survey

Table 7: ICT adoption level and Business performance

ICT adoption level Category	Rate of Business performance					Df = 9 P= 0.05 $\chi^2 = 27.22$ calculated value $\chi^2 = 16.9$ Critical value
	V. High	High	Moderate	Low	V. Low	
Basic communication n= 144	37 (26%)	72 (50%)	29 (20%)	4 (3%)	2 (1%)	
Basic Information Communication Technology n =138	21 (15%)	63 (46%)	45 (33%)	6 (4%)	3 (2%)	
Advanced communication n=97	27 (28%)	59 (61%)	10 (10%)	1 (1%)	0 (0%)	
Advanced Information Communication Technology n =88	19 (22%)	44 (50%)	17 (19%)	5 (6%)	3 (3%)	

Source: Survey

20 (21%), creating websites 17 (18%), E-commerce 11 (11%) and voice over internet protocol 3 (3%). Notably e-mail, internet browsing and file sharing were most used by firms in this category. The high frequency of respondents using e-mail and internet browsing 100% and 76% respectively indicates almost all enterprises utilized the information from the internet to generate various solutions to organization problems and to communicate to various stakeholders like customers and suppliers for speedy feedback and communication of business information.

Advanced information communication technology

Of the respondents, 88 (61%) had embraced Advanced level of Information Communication Technology. Levels in this category are presented in table 6. An overwhelming majority of respondents in this category (97%) and (90%) reported use of database management system and other in house developed software respectively. Minority of the respondents reported use Enterprise Resource Planning, Inventory Management Software and Customer Relationship Management respectively. From the results above the most popularly used software under this category were database management systems and other in-house developed software. This may be due to popularity and the commonality of these programs. These information systems can easily be tailored to meet the firms' requirement and they form the basic step in managing enterprise resource allocations and activities. The complexity of managing and modeling all activities to

conform or to run under enterprise resource planning systems and customer relation management, on the other hand, make them unpopular with the small enterprises.

Relationship between ICT adoption level and Business performance

The respondents were asked to rate the effects of ICT adoption on the performance of the business. Responses were received in various ICT adoption categories as depicted in table 7. Under category one, 37 (26%), 72 (50%), 29 (20%), 4 (3%) and 2 (1%) rated the business growth as very high, high, moderate, very low and low respectively. This category indicates a positive relationship between ICT adoption and business growth. This view is reinforced by the category of basic information technology. In the category of basic information technology, 21 (15%), 63 (46%) and 45 (33%) rated the business performance as very high, high and moderate respectively. Further, in the advanced communication category which consisted of 97 respondents, 27 (28%) and 59 (61%) of the enterprises rated the business performance as very high and high respectively and the rest of the enterprises in this category, which comprised of 10 (10%), 1 (1%) and 0(0%), indicated moderate, low and very low for business growth respectively. Respondents in the advanced information communication technology category with respondents of 88, 19 (22%) and 17 (19%) indicated very high, high and moderate business performance respectively, while the rest which constitutes 5 (6%) and 3 (3%) conforms for low and very low of business growth

Table 8: ICT adoption Rate

Adoption Rate	No. of respondents n=144
Very Fast	25 (17%)
Fast	67 (47%)
Moderate	35 (24%)
Slow	12 (8%)
Very slow	5 (3%)
Total	144 (100%) Mean Score: 3.7

Source: Survey

respectively. Generally, above 50% of the respondents in all categories supported the adoption of ICT in SSE for business performance. This view is supported by Wagner’s (1997) argument that with the implementation and the use of ICT into any business, allows the user to quickly discover the direction key factors and the extent to which critical factors are deviating from expected results.

Relationship between ICT adoption and business growth

Hypothesis testing was used to study association between ICT adoption level and business performance. This tested the given null hypotheses that:

H₀: There is no significance relationship between ICT adoption level and business performance.

H₁: There is significance relationship between ICT adoption level and business performance.

The chi square results revealed that there was statistically significant association between ICT adoption level and business performance at level 0.05 ($\chi^2 = 27.22$; df = 9; p= 0.05 ;) and the χ^2 critical value at 0.05 is equal to 16.919 as shown in Table 7 above. The values fall in the accepted region, therefore, we rejected H₀ and accepted H₁ respectively. This confirms that ICT adoption level is highly associated with business performance.

ICT adoption rate

The study sought to assess the attitudes of the respondents on the rate at which ICT was being adopted in small enterprises. The results were presented in table 8. Results show that 2% and 8% of the respondents believed the adoption rate were very slow and slow respectively, while 24% of them felt that there was a moderate rate of adoption of ICT. The rest of respondents 17% and 47% were of the opinion that ICT adoption rate in the small enterprises was fast and very fast respectively. The mean score of the Likert rating scale was 3.7 which lies slightly above moderate. It is notable that the adoption rate was evidently placed on the higher side. This indicates that the respondents believed there was a steady growth of ICT adoption rate in small enterprises, but a considerable number of respondents

Table 9: Areas of ICT usage in firms

Area of use	No. of respondents n=144
Document Processing	132 (92%)
Accounting Processing	92 (64%)
Inventory Control and sales	88 (61%)
Communication	143 (99%)

Source: Survey

still were not satisfied with the growth rate. This implies that some implementation factors and adoption should be addressed before firms can maximally reap the full potential of ICT adoption.

Areas of ICT usage in firms

The study sought to find out areas of ICT usage among the small enterprises in the CBD. The areas were categorized under document processing, Accounting Processing, Inventory Control and sales and Communication as shown in table 9. Results show that a majority (99%) of the small enterprises use ICT for communication and 92% for document processing, while those using it for accounting processing and inventory control and sales were 64% and 61% respectively. From the results, areas of ICT usage in firms tend to cover all essential areas of business processes. This was shown by the high percentages of respondents in each category.

CONCLUSIONS

The study found out that all the enterprises used basic communication category of ICT and that above 50% of all the respondents had adopted technology of one form or the other as best suited their situations. The study therefore concludes that there exists a recognizable level of ICT adoption and integration amongst small enterprises. It is therefore, necessary to develop programs and solid strategies aimed at sustaining the ever growing quest in this technological arena by cutting cost, offering competitive leverages and managing business dynamics. Furthermore, more than 50% of the respondents believed that ICT adoption rate was slow. The need for accelerated adoption of ICT among SEs in the CBD is urgent to spur economic growth.

Further, the study revealed that there was a statistically significant association between ICT adoption level and business performance at level 0.05 ($\chi^2 = 27.22$; df = 9; p= 0.05 ;) and the χ^2 critical value at 0.05 is equal to 16.919. This confirms that ICT adoption level is highly associated with business performance. Better business performance means less unemployment and its attendant ills in the society.

The study sets the following recommendations. Firstly, laid down procedures and rules governing the use of ICT should be consistently reviewed and appropriate planning

undertaken to allow small enterprises to take a proactive approach to problem solving to enhance company ICT and overall business performance and to also minimize waste and mistakes.

Secondly, ICT policies and procedures have to be carefully programmed, thoroughly crafted and tested to help prevent and recover from many kinds of mistakes and wastes. Firms should develop manuals and training programs, which specify criteria for new resource purchases, user developed processing tools, implementation, security, underlying ethical issues and periodic reviews for the effectively building, maintenance and utilization of policies and procedures.

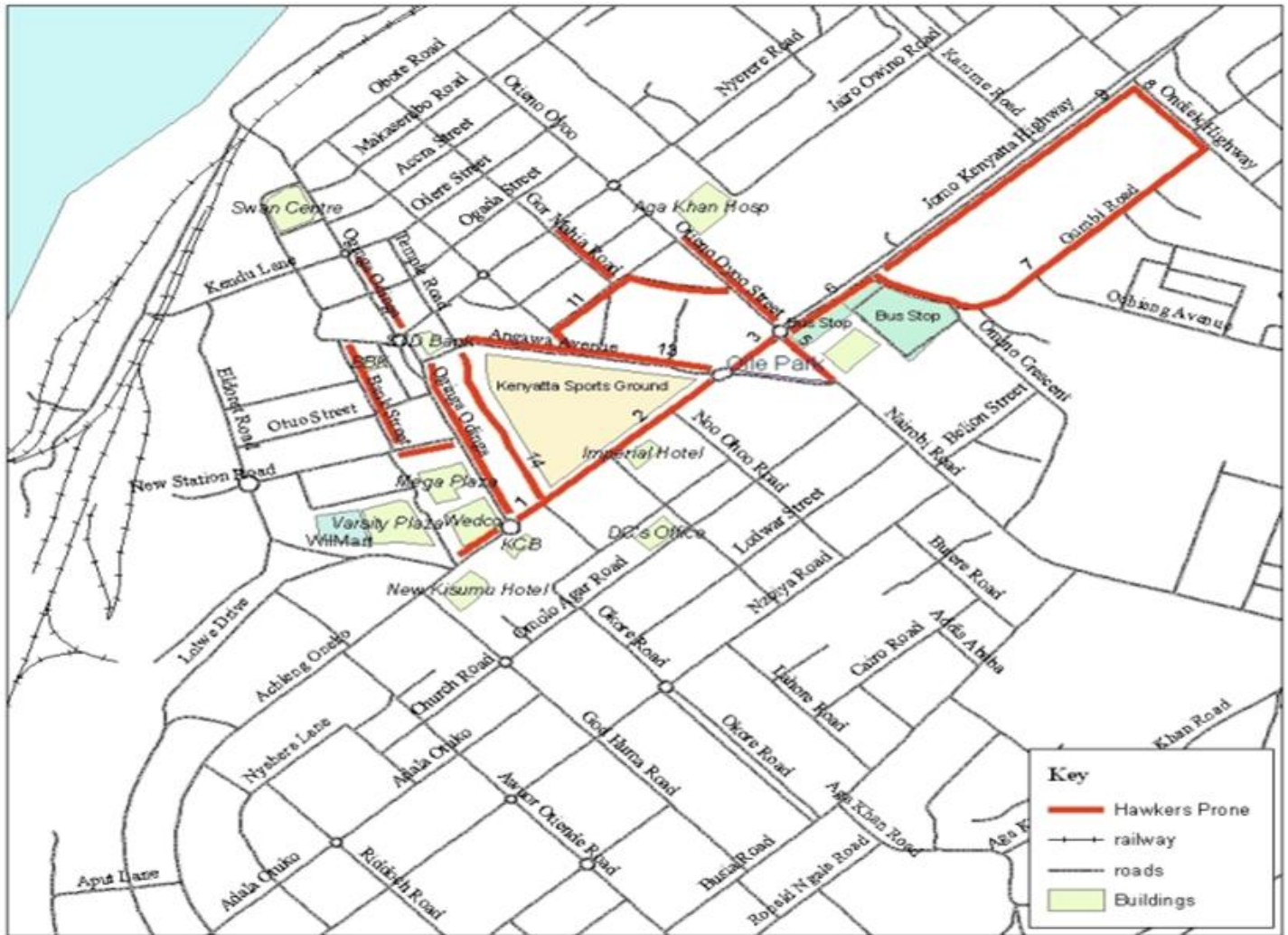
Thirdly, the Government of Kenya should focus in the development of Community access to ICT by providing easy access and incentives of acquiring or installing phone shops, telecenters (with different models for different settings), public phones, libraries, among others, and in strategic locations (e.g., near or at the informal market area, adjacent to health clinics. Further offer Community access to ICT at an affordable cost and based on dependable technology solutions (e.g., wireless and fixed wireless and satellite connections) that can rapidly be installed and effectively utilized.

Lastly but not least, although the government of Kenya has some policies in place, it must continue to foster and play an active role in encouraging and promoting the adoption of ICT while ensuring coherent enabling policies. The policies should include Provisions of financial and non-financial incentives to start-up ICT firms. She should also offer tax incentives to SEs that buy ICT products and services from local firms. The government should also build and develop ICT capacities and skills in order to attain national socio-economic goals. It is important, however, that additional research should be carried out to reveal information on small enterprises dynamics, especially on the challenges facing small enterprises.

REFERENCES

- Baldwin JR, Sabourin D (2002). Advanced technology use and firm performance in Canadian manufacturing in the 1990s, *Industrial and Corporate Change* 11(4): 761-789.
- Beckinsale M, Ram M (2006). Delivering ICT to ethnic minority businesses: an action- research approach, *Environment and Planning C: Government and Policy* 24(6): 847-867.
- Bresnahan FB, Brynjolfsson E, Hitt L (2002). Information technology, workplace organization and the demand for skilled labour: firm-level evidence, *The Quart. J. Econs.* 2: 339-377.
- Brynjolfsson E, Kahin B (2000). Introduction, in Brynjolfsson, E. and B. Kahin (Eds.), *Understanding the digital economy: data, tools, and research*. Cambridge, MA: The MIT Press, pp. 1-10.
- Cappelli P, Neumark D (1999). Do High-Performance Work Practices Improve Establishment-level Outcomes? NBER Working Paper No. 7374.
- Cohen D, Garibaldi P, Scarpetta S (2004). *The ICT Revolution: Productivity Differences and the Digital Divide*. New York: Oxford University Press.
- Cronin M (1996). *The Internet Strategy handbook*. Boston: Harvard Business School Press,
- Donner J, Tellez C (2008). Mobile banking and economic development: Linking adoption, impact, and use, *Asi. J. Comm.* 18(4): 318-322.
- Donner J (2006). The social and economic implications of mobile telephony in Rwanda: an ownership/access typology, *Knowledge, Technology, and Policy*, 19(2): 17-28.
- Ferrell OC, Hirt G, Ferrell L (2008). *Business – A changing world*, 6th edition, Boston: McGraw – Hill Irwin.
- Freeman RB, Kleiner M, Ostroff C (2000). *The Anatomy of Employee Involvement and its Effects on firms and Workers*. NBER Working Paper No. 8050.
- Frenzel CW, Frenzel JC (2004). *Management of information technology*, 4th edition. Course Technology Cengage Learning, Boston, USA.
- Kalakota R, Andrew W (1997). *Electronic commerce: a manager's guide*. Reading, MA: Addison-Wesley.
- Kalakota R, Marcia R (1999). *E-business Roadmap for success*. Reading, MA: Addison-Wesley.
- KNBS (2008). Kenya National Bureau of Statistics, statistical abstract 2008. Nairobi: Government Printer.
- KNBS (1999). Kenya National Bureau of Statistics: Kenya population census, 1999. Nairobi: Government Printer.
- Kibas PB (2005). *Rural entrepreneurship in Kenya: perception of women on entrepreneurship*. Nairobi: The KIM School of Management
- Kenya Institute of Management (2009). *Fundamentals of management research methods*. Nairobi: Macmillan (Kenya) Publishers Limited May 2009. K.I.M
- Kothari CR (2007). *Research methodology: methods and techniques* 2nd edition. New Age International (P) Limited, Publishers, New Delhi.
- Lee HG, Clark T (1997). Market process reengineering through electronic market systems: opportunities and challenges, *J. Manag. Inform. Sys.* 13: 13-30.
- Malone T, Yates J, Benjamin R (1987). Electronic markets and hierarchies, *Communication of the ACM.* 30: 484-497.
- Manueli K, Latu S, Koh D (2007). ICT adoption models. 20th Annual Conference of the National Advisory Committee on Computing Qualifications (NACCQ), Nelson, New Zealand. www.naccq.ac.nz.
- MCK (2010). Municipal Council of Kisumu (MCK) integrated information system. Kisumu: Municipal Council of Kisumu.
- Melymuka K (1999). Ford's Driving Force, *Computerworld*, September 6.
- Mugenda MO, Mugenda GA (2003). *Research methods: quantitative and qualitative approaches*. Nairobi: Acts Press.
- Neuman WL (2000). *Social Research Methods Qualitative and Quantitative Approach*, 4th Edition. Boston: A Pearson Education Company.
- Oso WY, Onen D (2008). A general guide to writing research proposal and report. A hand book for beginning researchers 2nd Edition. Kampala: Makerere University Printer.
- Pegels CC (1995). *Total quality management: a survey of its important aspects*. Danvers, MA: Boyd and Fraser Publishing Co.
- Rashid AT, Elder L (2009). Mobile phones and development: an analysis of IDRC-supported projects. *The Elect. J. Inform. Sys. Develop. Count.* <http://www.ejisdc.org>
- Smith K (2002). Assessing the economic impacts of ICT. STEP Report R-01, STEP Group, Oslo.
- Waverman L, Meloria M, Fuss M (2005) The Impact of Telecoms on Economic Growth in Developing Nations. In *Africa: The Impact of Mobile Phones*. The Vodafone Policy Paper Series, p. 3, pp. 10-23. <http://www.ictregulationtoolkit.org/en/Publication.3532.html>.
- Yamane T (1967). *Statistics: an introductory analysis*, 2nd Ed., New York: Harper and Row.
- Broadbent M, Weill P (1999) "The implications of information technology infrastructure for business process redesign," *MIS Quarterly*. p. 2, p. 23.
- Gates, Bill. *Business @ the speed of thought*. New York: Warner Books, 1999.

Appendix i: The Map of Kisumu city (Central Business District)



Researcher own source (2010).