THE DETERMINANTS OF ICT USAGE AMONG WOMEN ENTREPRENEURS IN KENYA: THE CASE OF EMBU TOWN

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ABSTRACT
Women entrepreneurs are an integral part of business management in Kenya today. Empirical studies indicate that some of the main business areas where women have intensively invested in can be broadly categorized as; financial, communication, hospitality and manufacturing. This way, women entrepreneurs have contributed important roles in business management and have made significant contributions toward nation building. In fact, women have embraced ICTs in business management so that they can accrue benefits associated with it such as; lower costs, reduced marketing time and increased opportunities for business alliances and networking. The aim of the study was to investigate the determinants of ICT usage among women entrepreneurs in Kenya. The researchers hypothesized that; entrepreneurial orientation, ICT facilities, and nature of business determined the utilization of ICT services among women entrepreneurs. The study adopted descriptive research design. The design was found to be appropriate because it aided in ascertaining and describing the characteristics of the subjects and phenomena under the study. The respondents of the study were women entrepreneurs in Embu town who were grouped according to their business ventures. The study used stratified random sampling method to pick 150 respondents. Data was collected by use of self-administered questionnaires. Out of 150 questionnaires distributed, 139 were retuned. However, 11 of the returned questionnaires were excluded for analysis due to incomplete information. The study established that the cost and maintenance of ICT infrastructure and ICT skills affect women entrepreneurs negatively. Women entrepreneurs also lacked exposure to make use of ICT infrastructure to conduct their numerous activities to enhance business development.

Key Words: Women Entrepreneurs, Business Management, ICT Usage
Introduction

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). From a stream of ICT literature that focuses on the small firm sector, this research takes the ICT adoption approach to advance the understanding of technology uptake among Women entrepreneurs with special reference to determinants of ICT usage among women entrepreneurs in Kenya.

The role of the ICTs in driving the global economy is widely recognized. This is because through ICT initiatives businesses world over have been able to accrue benefits such as; lower costs, reduced marketing time and increased opportunities for business alliances and networking. However, there has been a perception that the ICT is a male-phenomenon and therefore Women entrepreneurs have for a long time shied away from embracing it in the management of their respective businesses, despite the role they play as key stakeholders in the invention and running of businesses in the world today. For sometimes, the utilization of ICTs among women in Kenya was prevalent in the urban areas; and was limited to those in formal employment. However, a number of Women entrepreneurs have embraced the concept of ICT in the management of their businesses. This has given them an opportunity to contribute important roles in business management and have made significant contributions toward nation building (Mahmood & Hanafi, 2013; GOK, 2005). The exposure of women to ICT infrastructure and systems means that being part of the vulnerable group in Third world countries women will no longer be excluded from the global business trends.

In Kenya, women entrepreneurs are an integral part of economic growth (Nthuni, 2014). Their business activities are required both for wealth creation for families and the entire nation’s economy (GOK,1992;GOK,2005). Women’s activities in entrepreneurship enable them to effectively combine their productive and reproductive roles because of the flexibility in hours of work which permit them to care for their children and also contribute substantially to economic growth. This has made women to be regarded as a central focus of economic development and public policy concerns.

ICTs can play a crucial role in empowering women entrepreneurs, especially when coupled with policies addressing constraints that they face at the macro and systemic level. To achieve their full potential in ICT usage among women entrepreneurs Kenya need to catch up with new management and economic trends in ICT use in k-economy and e-commerce. To this end, the Kenyan government has embarked on laying the internet cables across the country; prevail upon SMEs to adopt the Internet as a new and more efficient way of doing business and generating new business. To assist in achieving this goal, the government offers funding through Women
and Youth Development Fund to SMEs for among other issues, computer system upgrades, training, technology acquisition, consultancy fees, and electronic commerce activities.

Studies have shown that the number of women entrepreneur is increasing twice as that of men and that Supporting female entrepreneurship is seen as having important ‘trickle down’ effects on wider poverty alleviation and gender equality (Ndubisi and Kahraman, 2005). Women are thus unavoidable partners as entrepreneurs in developing and shaping the world economically. Given this background and the likely benefits a firm is likely to accrue by embracing ICT, it is the intention of this study to establish determinants of ICT usage among women entrepreneurs in Kenya so that it can come up with appropriate recommendations which if implemented will enhance the uptake of the ICT concept in business management and related products and services among women who are perceived to be the engine of Kenyan’s economy.

Statement of the Problem

The importance of the potential of ICT to SMEs sector cannot be underestimated since these kinds of businesses are the majority in all economies in the world. Unlocking the potential of ICTs for small firms by, but not limited, to reducing the number of intermediaries, search and transaction costs, along with the benefits of network externalization, would provide opportunities for radical change in the present era of e-commerce and globalization. Acquiring Information Communication Technology (ICT) to support business needs, regardless of business size, is a crucial prerequisite to exploiting the potential of Information Technology (IT). Embracing IT greatly enhances the competitiveness of an enterprise.

Research Objectives

1. To determine how entrepreneurial orientation determine ICT utilization among women entrepreneurs.
2. To establish how the ICT infrastructure affect ICT utilization among women entrepreneurs.
3. To investigate how the nature of business affect ICT utilization among women entrepreneurs

Research Questions

1. How does entrepreneurial orientation determine ICT utilization among women entrepreneurs?
2. What is the effect of ICT infrastructure on ICT utilization among women entrepreneurs?
3. What are effects of the nature of business on ICT utilization among women entrepreneurs?
Conceptual Framework

The study conceptualized that; entrepreneurial orientation, ICT infrastructure and the nature of business influence the utilization of ICT services among women entrepreneurs in Embu Town. This relationship is shown in figure 1.

![Conceptual Framework](image)

**Figure 1: Conceptual Framework**

Theoretical Framework

The study was founded on Diffusion of Innovation Theory. Diffusion is the process by which an innovation is adopted by members of a community. According to Rogers (1995) as quoted by Hashim (2008), there are four factors that influence the adoption of an innovation by members of an organization these include; the innovation itself, the communication channels used to spread information about the innovation, time, and the nature of the group to which it is introduced. He argues that; there are four major theories that deal with the diffusion of innovation. These are; the innovation-decision process theory, the individual innovativeness theory, the rate of adoption theory, and the theory of perceived attributes. This study focused on the individual innovativeness theory and the theory of perceived attributes because they help to understand the relationship between the innovator characteristics and the adopters’ categories.
Individual Innovativeness Theory

The individual innovativeness theory is based on who adopts the innovation and when. A bell-shaped curve is often used to illustrate the percentage of individuals who adopt an innovation. According to Rogers (1995), there are five categories of adopters. The first category is called innovators. These are the risk-takers and pioneers who lead the way. They are able to adopt despite a high degree of uncertainty about the innovation at the time of adoption, and are willing to accept an occasional setback when a new idea proves unsuccessful. The second group is known as the early adopters. They climb aboard the train early and help spread the word about the innovation to others. The third group is the early majority. They are persuaded to adopt by the innovators and early adopters, and may deliberate for some time before completely adopting the new idea. Their innovation-decision period is relatively longer than that of the innovators and early adopters. The fourth group is the late majority. They approach innovation cautiously and wait to make sure that adoption is in their best interests. As a result, they do not adopt until most others have done so. The fifth group is called the laggards. These are the individuals who are highly skeptical and resist adopting until absolutely necessary (Hashim, 2008; Ndubisi and Kahraman, 2005).

Theory of Perceived Attributes

The theory of perceived attributes is based on the notion that individuals will adopt an innovation if they perceive that it has the following attributes. First, the innovation must have some relative advantage over an existing innovation or the status quo. Second, the innovation must be compatible with the existing values, past experience, and practices of the potential adopter. Third, the innovation cannot be too complex or perceived as difficult to understand. Fourth, the innovation must have trialability; that is, it can be tested for a limited time without adoption. Fifth, the innovation must offer observable results (Rogers, 1995).

He asserts that an adopter’s experience with one innovation influences that individual's perception of the next innovation in a technology cluster to diffuse through the individual's system. Thus, if an adopter has a negative first experience with one computer application, he or she may regard all computer applications through this perspective. Diffusion theory provides a framework that helps to understand why ICT is adopted by some individuals and not by others. This theory can explain, predict, and account for factors that increase or impede the diffusion of innovations.

The Gap

Most studies on ICT usage in SMEs focused on its utilization, irrespective of the gender of the owner, where the respondents were often employees who were IT-literate and IT-competent and not the owners. This study focused on the owners themselves (in women owned firms) irrespective of their IT literacy. This is because, as the decision-makers who are concerned with
the survival and expansion of their firms, they are often too busy to learn ICT or to appreciate its potential benefits to their business. Understanding how women entrepreneur learn to use and adopt IT will fill a knowledge gap in the IT adoption model by providing insights concerning the determinants of ICT usage among women entrepreneurs and help policy makers and providers of training programs to develop IT-related policy and training that will enable women entrepreneurs to quickly learn and adopt IT and thus become IT-Compliant.

Research Methodology

The study adopted explanatory research design. The design was appropriate because it includes descriptive elements and goes beyond to identify and explore the causes lying behind the effects and the nature of the relationships between the independent and dependent variables. Therefore, explanatory research attempts to investigate the causes of particular phenomena, not simply to describe them (Sekaran 2003; Kothari, 2004; Cooper and Schindler, 2009). The target population was women entrepreneurs in Kenya with special reference to those in Embu town. Economic Surveys of 2011/12 indicated that Embu was one of the Districts with low poverty levels and had recorded one of the highest economic growths.

The study adopted random selection method in selecting its sample, where 150 respondents (approximately 50%) of a population of 309 were picked. Self-administered questionnaires were used to collect data. The study managed to collect 139 filled questionnaires however, 11 questionnaires were not fully filled. Therefore, a total of 128(that is a response rate of 85%) questionnaires were found suitable for statistical analysis. The rejection of semi-filled questionnaires was based on the fact that completely filled items give prejudice-less results and gives substantial representation where different statistical test can be tested (Sekaran, 2003). This response rate is considered “very good” since Babbie (1998), recommended that more than 70% response rate is very good, 60% rate is considered good and 50% is adequate for data analysis.

Research Findings and Discussions

This section reports the findings of the study which investigated the determinants of ICT usage among women entrepreneurs in Kenya. The researchers hypothesized that; entrepreneurial orientation, access to ICT tools and nature of business determines the usage of ICT among women entrepreneurs.

Sample Characteristics

The study established the characteristics of the business owners and their respective business in terms of their age bracket, marital status, reasons for starting the business, type of business and source of capital. The study established that majority, 32% (41), of respondents were in the age bracket of “41-50 years” while the least was in the age bracket of “up to 30 years” at 17% (22). On status, 61 % (78) of business owners “Single” while 39% (50) were “Married”. The findings
suggest that, Women entrepreneurs normally cut across all social status as they are either; married, single, divorced, or widowed. The fact 61% of the respondents were either that Single, divorced, or widowed implied that they are the sole breadwinners of their families.

Reasons for Starting the Business

Majority 42% (54) of women entrepreneurs started the business because they wanted to have “a source” of income while another 34% (44) wanted to have “another source” of income. This suggested that most (76%) women engaged in entrepreneurship ventures solely for income purposes and not for other reasons such as; controlling own destiny, taking risk, want to be own boss among others as indicated by 24% of the respondents (Bwisa, 2011). Need for greater income, unemployment and last resort are classified as Push factors and have been established as the main reasons why many women have engaged in entrepreneurial ventures (Khanka, 2012: Kuratko and Hodgetts 2007). This is unlike men who are driven by Pull factors such as; autonomy and independence, personal satisfaction and achievement, dream of being an entrepreneur, gap in the market and looking for a challenge.

Type of Business

The study wanted to establish the type of business the women entrepreneurs engaged in. The type of business was categorized into six broad categories including: Financial, Communication, Hospitality, Distribution of Manufactured Products, Sale of Agricultural Produce and Beauty Products or Services. The study revealed that Women entrepreneurs in Embu town operated business in financial, communication and hospitality sectors, distributors of manufactured products, sellers of agricultural produce and beauty products or services. Specifically they functioned as farmers, hairs dressers, mobile phone sellers, trade in computer accessories, attendants in cyber café and internet shop, ICT-based trainers, photography shop, hardware suppliers, kiosk, fast food cafeteria, shylocks, M-pesa, Hotels, outside catering and fruit vendors, food crop, new and second-hand cloth merchants and many more an indication of the role that women entrepreneurs play in diversifying goods and services. Other areas that were investigated include; sources of capital, experience in and location of their businesses. On sources of finance, the study revealed that most of them (63%) relied on personal savings to obtain finances to start off their businesses and subsidized the same with support from friends and relatives, group saving ‘Chamas’ and loans which to many respondents had many challenges that affected their businesses negatively (Kuriloff, et el, 1999).

It was further established that, most (86%) women entrepreneurs lack experience in their businesses since there was little or no relationship between the actual business activity and previous experience. The study established that up to 56% of the businesses are not located in the premises indicated in the registration documents. On the reason as to why they changed the initial location, the majority (67%) of the respondents attributed it to high rental and utility costs.
and the need to strategically position the business. Therefore, they moved to new locations which were convenient to them irrespective of whether authorised or not. They therefore operated in open spaces, housed in temporary or semi-permanent structures such as containers located in front of their houses or other business premises, along the roads and bus stops and park spaces among others. Another 62% said that they have not renewed their business registration. To manage the challenges they encounter, majority (59%) Women entrepreneurs have organised themselves into groups (Chamas) which facilitate in securing and disbursement of loans from mostly micro-finance institutions and negotiating for the general welfare of their business with town administrators, organize forums, seminars and exhibitions for them.

**General Perspective on ICT Adoption**

The use of ICT is crucial and arguably unique in allowing small businesses and their entrepreneurial owners to sharpen their strategies in order to achieve this success. This was the main reason why the study wanted to establish the degree to which women entrepreneurs had adopted ICT usage in managing their businesses. Majority 69% of the respondents were “moderate”, 17% “low” while 14% said “High”. This implied that majority (83%) of women entrepreneurs have adopted ICT up to some “acceptable levels”

**Manifestation of ICT**

The study established that 92% of the respondents had functional mobile phones, 52% use internet services either from their phones, office computers or cyber café and 38% had installed computers for the sole purposes of managing their businesses. A further analysis established that all those who had computers or use internet services had mobile phones.

**Benefits Accrued through ICT Usage**

The respondents said that embracing ICT in managing their businesses had helped them reduce paperwork and therefore bundles of paper in their premises and related costs such as printing, filing and searching. Making calls had also helped them save time, money and energy and improved reliability. A 37% in the hospitality and financial sectors said it had made bill automation possible. While a number of those operating wholesale shops said that ICT had helped them retrieve information on past sales and were able to predict and plan for customer behaviour. At the same time they were able to establish a stock tracking system, able to get different prices for a product and there identify suppliers in good time. ICT had also facilitated in advertising their businesses supplementing the traditional method such as; by way of mouth, leaflets, and bill postings.
Access to ICT Facilities

The study also established that ICT Skills, cost and location had negatively influenced the utilization of ICT services among women entrepreneurs. The study established that 67% of women entrepreneurs did not utilize ICT services because of inadequate ICT skills while another 26% and 7% did not use ICT services because of cost and location related issues respectively.

Entrepreneurial Orientation

Entrepreneurial orientation is usually defined as a multidimensional construct, applied at the organizational or entrepreneur’s level, which characterizes entrepreneur’s or firm’s entrepreneurial behaviour and includes one or several of these three dimensions: risk-taking, innovativeness and pro-activeness (Mahmood and Hanafi, 2013). To establish the entrepreneurial orientation of the women entrepreneurs, the study sought to find out how the respondents perceive their businesses in terms of risk-taking, pro-activeness, innovativeness, competitive aggressiveness and autonomy. This is because an entrepreneurial firm/person is one who engages in product-market innovation, undertakes somewhat risky ventures, and is first to come up with ‘proactive’ innovations, beating competitors to the punch. The study established that women entrepreneurs conformed to the components of entrepreneurial orientation only that they were shy as far as risk taking was concerned. Most of the respondents, (52%) said their businesses had low propensity to risk taking. Other measures of entrepreneurial orientation scored highly with 57% of the respondents said their businesses had high propensity to act autonomously, followed by 39% who said their business was aggressive to competition, while 36% and 34% of the respondents said their businesses had high propensity pro-activeness and innovative respectively. This suggested that given time and other resources, women entrepreneurs can create a niche for their businesses since they were able to come up with new ways to doing work and developed new products as dictated by the market.

Nature of the Business

Many entrepreneurs come up with a business strategy, and then engage ICT to support it since ICT is now one of the major areas that will shape the future, and has the potential to create more value at the core of the strategy rather than as an afterthought. However, in the present era of e-commerce and k-economic and globalization there are some businesses that cannot operate without ICT facilities. This is why the study intended to establish how the nature of business has influenced the adoption of ICT among women entrepreneurs. The study established that only 28% of the women entrepreneurs in Embu town cannot operate their businesses without ICT. These were mainly those in Financial and Communication classification of business of this study.
Correlation Coefficient for all Variables

Pearson Correlation Coefficient analysis for all Variables was performed. Table 1 shows that all the variables were independently positively Correlated with utilization of ICT among women entrepreneurs and also variously significant at P value 0.05 levels. The highest correlation (r =0.590) was between entrepreneurial orientation and adoption of ICT among women entrepreneurs, followed by the association (r =0.499) between nature of business and adoption of ICT among women entrepreneurs; access to ICT infrastructure and adoption of ICT among women entrepreneurs (r= 0.456). This implied that entrepreneurial orientation influenced the utilization of ICT services among women entrepreneurs in Embu town followed by nature of business.

The determinants were pair-wise positively correlated with one another and were proved to be statistically significant at P-value 0.000. Among the three determinants, the relationship (r =0.479) between ICT infrastructure and Entrepreneurial orientation was the highest, followed by the links (r =0.476) between Access to ICT infrastructure and nature of business. (r = 0.456) between nature of business and Entrepreneurial orientation. The relationship is shown in table 4.7.

Table 1: Pearson Correlation Coefficient for all Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Adoption of ICT</th>
<th>Entrepreneurial Orientation</th>
<th>Access to ICT Infrastructure</th>
<th>Nature of Business</th>
</tr>
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<tbody>
<tr>
<td>Adoption of ICT</td>
<td>Pearson</td>
<td>1</td>
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<td>Correlation</td>
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<td>128</td>
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<tr>
<td>Entrepreneurial Orientation</td>
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<td>.590*</td>
<td>1</td>
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<tr>
<td></td>
<td>Correlation</td>
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<td>Sig. (2-tailed)</td>
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<td>128</td>
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<tr>
<td>Access to ICT Infrastructure</td>
<td>Pearson</td>
<td>.456**</td>
<td>.479**</td>
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<td></td>
<td>Correlation</td>
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<td>Sig. (2-tailed)</td>
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<tr>
<td>Nature of Business</td>
<td>Pearson</td>
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<td>.456**</td>
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* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).
Regression analysis for Summary Results

A multiple regression analysis was performed to identify the predictors of utilization of ICT as conceptualized in the model. From table 2 the ICT determinants (Entrepreneurial Orientation, ICT Infrastructure, Nature of Business) in the model revealed the ability to predict adoption of ICT ($R^2 = 0.693$). In the goodness of fit model, value of $R^2$ denotes that 69.3% percent of the observed variability in adoption of ICT can be explained by the said ICT determinants. The remaining 30.7% percent is not explained implying there are other determinants of ICT adoption which are not covered in the model.

**Table 2: Goodness of Fit- Summary Model for Predictors of Adoption of ICT**

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<tr>
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<th>R</th>
<th>R Squared</th>
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<td></td>
<td>.743</td>
<td>.693</td>
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</table>

a. Predictors: Entrepreneurial Orientation, Access to ICT Infrastructure, Nature of Business

b. Dependent variable: Adoption of ICT

Conclusions

The study established that women entrepreneurs in Embu town have invested in a number of the key areas of economic development though in a small measure. It was also established that most have embraced ICT to enhance their business performance and that given the nature of their business, 28% of women entrepreneurs cannot operate without ICT services. However, it was noted that majority of them (52%) are averse to risk taking suggesting that their propensity to succeed as entrepreneurs is highly compromised. The study also noted that women entrepreneurs have established ways of addressing financial issues and therefore, capital, especially “growth capital” was not a major challenge to many of them. Micro-Finance and other related Institutions channel Loans to them through “Chamas”. “Chamas” are also responsible for negotiating for the general welfare of their business with town administrators; organize forums, seminars and exhibitions for them.

Recommendations

To enhance the performance of businesses owned by women entrepreneurs and increase utilization of ICT services among them, financial institutions that loan them, town administrators and other interested bodies should organize training and other fora to create awareness to help them appreciate their potentialities. This will not only help them become better risk taking entrepreneurs but also help them repay the loans advanced to them as required. Their expanded businesses will mean revenue to the town managers through taxes they pay. The Office of the Director Digital Media and Diaspora Communication should develop ICT programs to help women entrepreneurs evaluate the results of their businesses, and analyse the opportunities they
have. The programs will also help women entrepreneurs to carry out feasibility studies of their business strategy, mobilise their resources, and start off a business using well-thought-out business plans.

References


