

THE EFFECT OF ICT SERVICES ON BUSINESS PERFORMANCE IN THE INFORMAL SECTOR IN KENYA - A CASE OF INFORMAL ENTERPRISES IN MLOLONGO TOWNSHIP

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Abstract

This study sought to assess the effect of ICT usage on the business performance of informal sector enterprises in Kenya. The overall objective of this study was to assess the effect of the Mobile phones, the Internet, the Computers and Broadcast Media Technology usage on the business performance of the informal enterprises in Kenya, with a specific focus on those in Mlolongo Township. Descriptive research design was used in the study. A sample of 100 enterprises was generated using stratified random sampling while the subjects for each stratum were selected using convenience sampling technique. Data was collected using questionnaires and a response rate of 91% was achieved. Data analysis was done using SPSS V20 while the results of the study were presented using tables and charts. The findings showed that ICT usage explained approximately 76.9% of the positive change in business performance. Precisely mobile phone usage was found to explain 93.6%; computer usage 53.4%; internet usage 62.3% while broadcast media explained 85.6% positive change in business growth. The findings also showed that mobile phone was the most preferred ICT tool in the informal sector in Kenya with a diffusion rate of 100%. Broadcast media technology was second with 94.5%, followed by internet at 57.5% and lastly computers with 27.5%. The respondents cited high tariffs, network issues and security as the main challenges experienced across the four ICTs.

Keywords:

Information Communication Technology, Business Performance, Informal Sector, Mobile Phones, Computer, Internet, Broadcast Media Technology

1. INTRODUCTION

According to Communication Authority of Kenya (2014)[1], Kenya has witnessed a significant growth in the ICT as demonstrated by the number of subscriptions in Mobile telephony, fixed telephony, Internet/Data, Electronic Transactions and Broadcasting. By September 2014, there were 32.8 million mobile subscribers and mobile penetration of 80.5 per cent. At the same time, there were 26.9 million mobile money subscribers. Estimated internet users were 23.2 million which translated to 57.1 of 100 inhabitants having access to internet services. The International internet bandwidth available was 847,516 Mbps of which 56.4 per cent was being utilized. The Kenyan Government has underscored universal access to ICTs as a major objective of Vision 2030, which is Kenya's economic blueprint that is aimed at propelling Kenya from a developed to a middle-income country [2]. In Kenya only about 19 per cent of all employment is formal, while the share of informal economy jobs has steadily increased from 70 per cent in 2000 to 83 per cent in 2012 [3]. Additionally,

the declining capacity of the formal sector to create employment is evidenced by the fact that out of the 445,900 new jobs created in 2009, 88 per cent were in the informal economy [3].

Informal sector enterprises are taxed through the value added tax charged on goods purchased, business licenses and daily business fees targeting the hawkers and roadside vendors. The informal sector characteristics according to Meir & Rauch (2000) [4] include: ease of entry; reliance on indigenous resources; family ownership of enterprises; small-scale operations, labour intensive and adapted technology; skills acquisition outside the formal school sector and; unregulated and competitive markets.

Though different forms of ICT services are being used by both formal and informal economies, the final result has been in changing the way business was traditionally done. ICTs are believed to reduce the coordination and transaction costs of doing business. Malone et al. (1987) [5] argue that ICT lowers transaction costs because technology allows information to be communicated in real-time and at much lower costs, thereby reducing costs that are required in order to find a particular good that is focus of the transaction. Benjamin & Wigand (1995) [6] on their discussion on how ICT can reduce transaction costs, points out that ICT decreases coordination costs within the value chain, resulting in benefits for consumers through lower prices. Additionally, producers/retailers can reduce their intermediation and coordination costs.

Kenya's informal sector which plays a big role in employment creation and provision of goods and services can tap the benefits of ICT usage. Previous studies [7] - [10] have showed that there is significant diffusion of ICT services in the small and medium enterprises with ICT usage intensity depending on the size of the enterprise. The study seeks to assess the effect of ICT usage in the informal sector in Kenya with a specific focus on mobile phones, computers, internet and broadcast media.

2. STATEMENT OF THE PROBLEM AND CONCEPTUALIZATION

Informal sector has for many years been perceived as no more than a survival tactic for the poor in urban Kenya. However the significance of the informal sector in providing opportunity to generate wealth for Kenyan citizens cannot be undervalued. The sector plays a big role in economic development through job creation, the supply of affordable goods and services and the reduction of poverty. It is estimated that about 10 million persons

were engaged in the informal sector in the year 2012, up from about 6m and 9m in 2004 and 2010 respectively [3]. The report also depicted that the proportion engaged in the informal employment has been increasing over the years while the formal employment has been decreasing. According to Kenya National Bureau of Statistics, Economic Survey (2013) [11], the informal sector constitutes 89.7% of the employment opportunities.

Several studies have been done on factors that influence the growth of businesses in the informal sector. Many studies [12] - [14] singled out ICTs as an important factor that promotes the growth of businesses in this sector. While other studies [7] - [10] have done an analyses of the ICT usage trends in the informal sector, it is interesting to note that none of these studies have explained how exactly ICTs influence business performance. The study therefore focused on the effect of ICT Services on the business performance in the informal sector in Kenya. The study was limited to four main ICTs namely: Mobile phones, Internet, Computers and Broadcast Media Technology.

2.1 OVERALL OBJECTIVE

The overall objective of this study was to assess the effect of the ICTs on the businesses performance in the informal sector in Kenya, with a specific focus on those in Mlolongo Township.

2.2 SPECIFIC OBJECTIVES

- To assess the effect of Mobile phone usage on the business performance in the informal sector in Mlolongo Township.

- To explore the effect of Computer usage on the business performance in the informal sector in Mlolongo Township.
- To evaluate effect Internet usage on the business performance in informal sector in Mlolongo Township.
- To determine the effect of Broadcast Media Technology on the business performance in the informal sector in Mlolongo Township.

The study focused on four main independent variables: the mobile phones, the computers, the internet and broadcast media technology while dependent variable was business performance.

3. CONCEPTUAL FRAMEWORK

A conceptual framework is a logically developed and elaborated network of interrelationships among variables integral in the dynamics of a situation being investigated. It explains the theory underlying these relationships and describes the nature and direction of these relationships. A variable is a measurable characteristic that assumes different values among the subject. It is therefore a logical way of expressing a particular attribute in a subject [15]. A dependent variable is the variable of the primary interest to the researcher. In addition [15] also defines a conceptual framework is a diagrammatical representation that shows the relationship between dependent variable and independent variables. The conceptual framework for this study demonstrates the linkage between the business performance and ICT with specific focus on the mobile phones, computers and internet and broadcast media as depicted by the figure below.

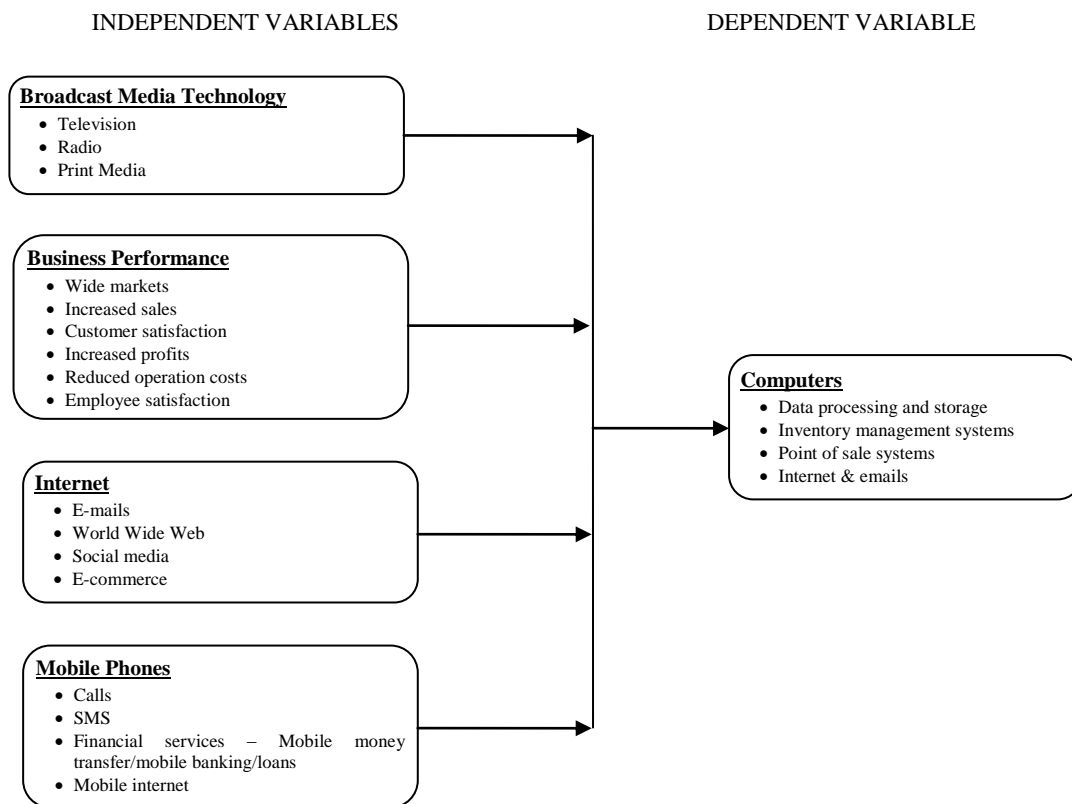


Fig.1. Conceptual Framework

4. MATERIALS AND METHODS

A research design is the conceptual structure within which the research is conducted; it constitutes the blue print for the collection, measurement and analysis of data [16]. For the purposes of this study, the researcher applied descriptive research design, which according to (Kothari 2012) [16], is concerned with describing the characteristics of a particular individual or a group. A descriptive study tries to discover answers to the questions who, what, when, where, and sometimes how [17]. The study sought to establish and describe the effects of ICT usage on the business performance of the informal sector enterprises using descriptive research design. The population for this study comprised of the informal sector enterprises in Kenya with specific focus on informal enterprises in Mlolongo town within Mavoko Sub County of Machakos County. This study classified the informal enterprises according to the guidelines of the 15th International Conference of Labour Statisticians (ICLS) resolution [18] which came up with the criteria for defining informal sector enterprises. For the purposes of this study the classification was based on the Legal organization – The enterprise should be unincorporated; Ownership- the enterprise should be owned and controlled by members of household; Type of accounts – lack of accounts or incomplete financial books of accounts and Production destination - the enterprise should be generating some form of output to the market.

The sample was obtained using stratified random sampling which according to Cooper and Schindler (2008) [17] refers to probability sampling that includes elements of each of the mutually exclusive strata within the population. The elements of each stratum was generated using convenience sampling techniques which according to Cooper & Schindler (2008) [17] is the non-probabilistic sampling in which researchers use any readily available individuals as participants. This is because it was difficult to tell which business is incorporated by looking at it, so issued the questionnaires to the business that meets our criterion. For this study, the researcher collected primary data using questionnaires comprising of open and close ended questions. Materials comprised of printed questionnaires, pens, and a computer for data analysis. A team of five research assistants were employed to issue the questionnaires and assist the respondents in filling up the questionnaire.

A pilot test was carried out to test the data collection instruments for validity and reliability of the research instruments. Pilot testing was conducted on 10 informal enterprises in Mulolongo Township representing 1% of the sample which according to Cooper & Schindler (2011) [19], 1% of the sample should constitute the pilot test. The researcher used Cronbach’s alpha [20] to measure the internal consistency of the research instruments. SPSS was used to compute the Cronbach’s alpha values. The recommended alpha value of 0.7 was used as a cut-off point for the reliabilities.

Data collected in this study was sorted, coded and tabulated based on study objectives and variables using statistical program for social sciences (SPSS version 20). The results obtained were presented in tables, charts where applicable. Descriptive statistics including measures of association and measures of dispersion were used to analyse data variables. SPSS was used to compute

Pearson’s rank correlation coefficient to find out the relationship between dependent and independent variables.

Regression analysis was used to predict the impact of ICT (independent variable) on business performance (dependent variable). Regression equation was developed to show dependent variable as a function of independent variable.

The effect of ICT services on business performance was tested using regression analysis model below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 \quad (\text{Significant level } 0.05)$$

where,

Y = Business performance

β_0 = Coefficient of Intercept

$\beta_1 \dots \beta_4$ = Regression coefficients of independent variables

$X_1 \dots X_4$ = Independent variables (Mobile phones, Computers, Internet, Broadcast Media Technology)

ε = Error term.

5. SUMMARY OF THE FINDINGS

The findings of this study reported significant ICT usage levels and a positive influence of ICT services on the business performance in the informal sector.

5.1 DIFFUSION RATE OF ICTS IN THE INFORMAL SECTOR

The findings from the study showed that ICT diffusion levels in the informal sector were significant with Mobile phones at 100%, Broadcast Media Technology at 94.5%, Internet access at 59.3% and computers at 27.5%. This can be attributed to the ease of access and use of mobile phones and high prevalent rate while low uptake of computers can be attributed to the cost of acquisition and knowledge of usage. The high level of internet usage can be attributed to the affordable smartphones available in the Kenyan market. The results are presented graphically below.

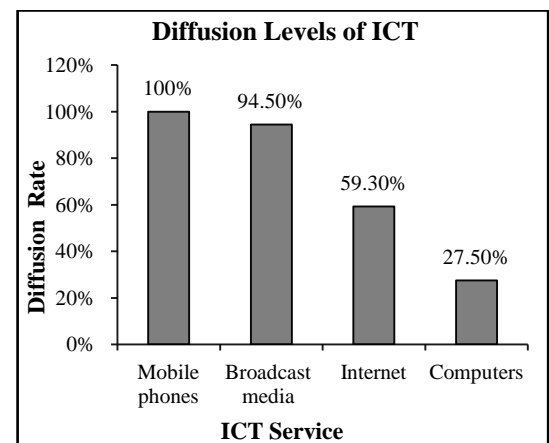


Fig.2. Diffusion levels of ICT services in the informal sector

5.2 EFFECT OF MOBILE PHONE USAGE IN BUSINESS PERFORMANCE

The findings of the study revealed majority of the respondents agreed that overall business performance had improved and that mobile phone led to increased sales, reduced operational costs, happier customers, happier employees and high profits. Mobile Phone which is the most used ICT service enables the businesses to keep in touch with their suppliers, customers. Mobile money services have made it easier to pay for goods and services from a distance and have also enabled banking and loan services at the comfort of the informal entrepreneurs' business premises. For those informal entrepreneurs with employees, the findings revealed that the employees were happier because they were able to consult with their employers in real time by use of mobile phones. Statistically mobile phones explained 93.6% positive change in business growth. The results are presented graphically below.

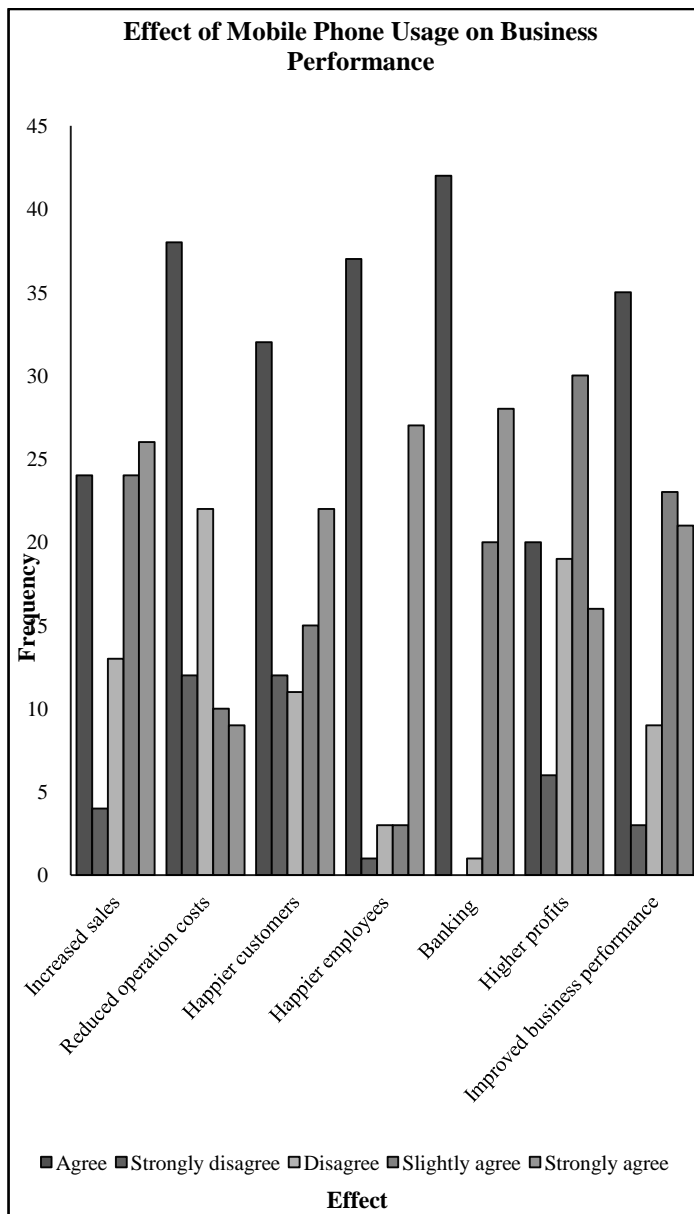


Fig.3. Effect of Mobile Phone Usage On Business performance in the informal sector

5.3 EFFECT OF COMPUTER USAGE IN BUSINESS PERFORMANCE

Though the diffusion rate of Computer usage was low, the findings revealed that computers enable the business owners to keep their records, type letters and access internet. The respondents agreed that they were able to manage the business information better, gather market information and also connect with suppliers and customers via social media and email. It was noted that majority of the respondents strongly agreed that overall business performance had improved as a result of computer usage. Statistically computers explained 53.4% positive change in business growth. The results are presented graphically below.

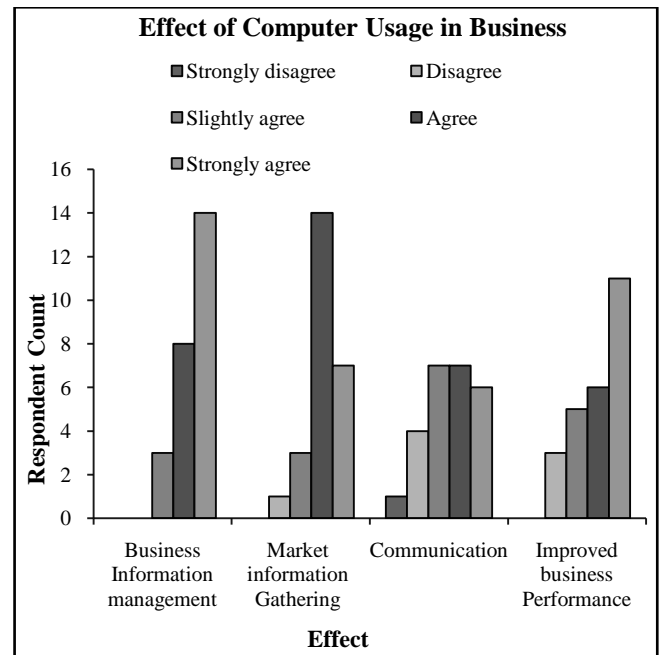


Fig.4. Effect of Computer Usage In Business

5.4 EFFECT OF INTERNET USAGE IN BUSINESS PERFORMANCE

The findings revealed that majority of the respondents agreed that internet usage had improved the business performance. The respondents agreed that they were able to gather market information, contact more suppliers and customers (wider markets) via internet; that internet offered a cheaper means of communication; and that they were able to advertise. Statistically internet usage explained 62.3% positive change in business growth. The results are presented graphically below.

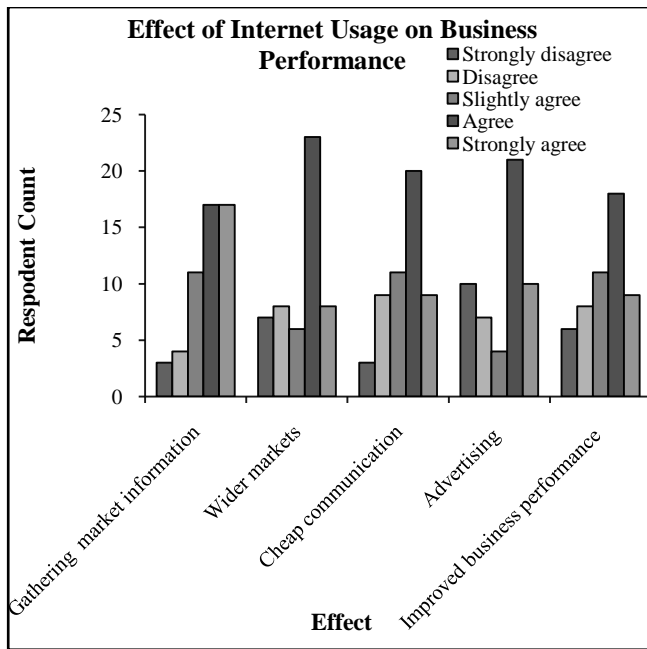


Fig.5. Effect of internet usage on business performance

5.5 EFFECT OF BROADCAST MEDIA (TV&RADIO) ON BUSINESS PERFORMANCE

The findings revealed that majority of the respondents slightly agreed that overall business performance had improved as a result of broadcast media usage. However, the respondents agreed that TV and Radio enable them to gather market information: watch/listen to educative business programs and that they were able to get the current affairs of the economy. Statistically broadcast media explained 85.6% positive change in business growth. The results are presented graphically below.

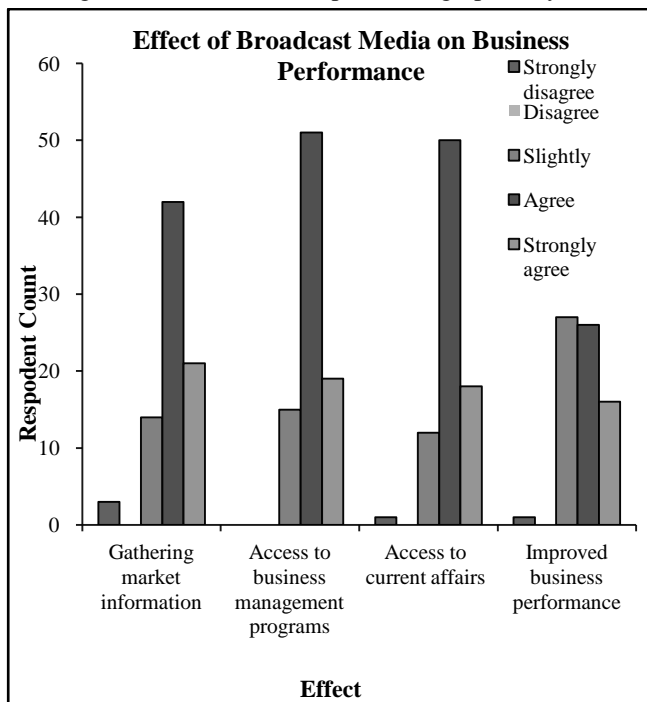


Fig.6. Effects on broadcast media on business performance

5.6 CHALLENGES OF USING ICT SERVICES

The findings also revealed that there were challenges experienced in the use of ICT services. The challenges that were common among the four ICT services were: High tariffs such as the cost of making a call, accessing internet or paying for TV; Connectivity/Network issues such as poor network, slow internet speeds, blurred clarity of TVs during rainy seasons; Service failures like voice, SMS, and mobile money services; Security issues such as exposure to cyber-crime like virus attacks, identity theft, and exposure to pornography.

6. REGRESSION ANALYSIS

Multiple regression analysis was conducted to predict the extent to which use of ICT influences business performance in the informal sector. Regression analysis was done on the each independent variable i.e. Mobile phones, Computers, Internet and Broadcast media and finally another analysis was done on the overall influence of the independent variables on the dependent variable (Business performance).

6.1 EFFECT OF MOBILE PHONE ON BUSINESS PERFORMANCE IN THE INFORMAL SECTOR

A multiple regression analysis was conducted to predict the extent to which use of Mobile Phones influences business performance in the informal sector. On the use of mobile phone in business the variables looked into include increased sales, reduced operation costs, happier customers, happier employees, banking, higher profits and improved overall business. The R-square was found to be 0.936 meaning that the weighted value of the ICT usage explained approximately 93.6% of the positive change in business growth as shown in Table.1 below.

Table.1. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1	0.936	0.927	0.89	0.176

Analysis of Variance (ANOVA) was used to determine the linear relationship among the variables under investigation. Using this method, the sum of squares, degrees of freedom (*df*), mean square, value of *F* (calculated) and its significance level was obtained. The results are shown in Table.2 below.

Table.2. Analysis of Variance (ANOVA)

Model	Sum of Squares	Df	Mean Square	F-calculated	Sig.
Regression	0.1562	1	0.781	2.523	0.0512
Residual	0.0124	90	0.0317		
Total	0.1686	91			

The Table.2 above shows that the significance value is 0.0512 which is higher than 0.05 thus the model is statistically significant in predicting usage of mobile phone in business growth at the 5% significance level.

A multiple regression was run to predict business growth from the use of mobile phones specifically in increased sales, reduced operation costs, happier customers, happier employees, banking, higher profits and improved overall business. These variables statistically significantly predicted use of ICT in business growth, $F(1, 99) = 2.52, p < .0005, R^2 = 0.626$. All seven variables added statistically significantly to the prediction, $p < .05$.

The regression model was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 \quad (\text{Significant level } 0.05) \quad (1)$$

where,

Y = Dependent variable (Success of Business)

β_0 = Constant (coefficient of intercept)

β_1 = Beta coefficient

X_1 = Increased Sales

X_2 = Reduced operation cost

X_3 = Happier Customers

X_4 = Happier Employees

X_5 = Banking

X_6 = Higher Profits

X_7 = Improved overall business performance

Table.3. Regression model

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	0.899	1.376		1.542	0.005
Increased sales	0.746	0.186	0.045	0.005	0.002
Reduced operation costs	0.065	0.125	0.037	0.009	0.004
Happier customers	0.975	0.065	0.025	0.011	0.001
Happier employees	0.057	0.015	0.031	0.014	0.003
Banking	0.384	0.025	0.015	0.016	0.002
Higher profits	0.942	0.015	0.098	0.003	0.005
Improved overall business performance	0.145	0.135	0.023	0.018	0.001

From the findings represented in Table.3 operation cost, happier customer, happier employees, banking, higher profits and improved overall business performance are significantly different from zero, since there have a p-value of less than 0.05. This study revealed that the use of mobile phone in business had a high impact on Banking with absolute t -values of $t(91) = 0.016, p = 0.0036$, happier employees with absolute t -

values of $t(91) = 0.014, p = 0.0024$, happier customers with absolute t -values of $t(91) = 0.011, p = 0.0012$, increased sales with absolute t -values of $t(91) = 0.005, p = 0.0014$, higher profits with absolute t -values of $t(91) = 0.003, p = 0.0006$ and improved overall business performance with absolute t -values of $t(91) = 0.018, p = 0.0085$.

6.2 EFFECT OF COMPUTER USE ON BUSINESS PERFORMANCE IN THE INFORMAL SECTOR

On use of computer the variables looked into were: able to manage business information better, able to surf for market information, communication via email and social media to suppliers and customers and overall business performance has improved. The R -square was found to be 0.534 meaning that the weighted value of the ICT usage explained approximately 53.4% of the positive change in business growth as shown in Table.4 below.

Table.4. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1	0.534	0.351	0.129	0.1233

Analysis of Variance (ANOVA) was used to determine the linear relationship among the variables under investigation. Using this method, the sum of squares, degrees of freedom (df), mean square, value of F (calculated) and its significance level was obtained. The results are shown in Table.5 below.

Table.5. Analysis of Variance (ANOVA)

Model	Sum of Squares	Df	Mean Square	F-calculated	Sig.
Regression	0.117	16	0.095	0.654	0.0521
Residual	0.037	75	0.005		
Total	0.154	91			

The Table.5 above shows that the significance value is 0.0521 which is higher than 0.05 thus the model is statistically significant in predicting usage of mobile phone in business growth at the 5% significance level.

A multiple regression was run to predict business growth from the use computers specifically in management of business information better, able to surf for market information, communication via email and social media to suppliers and customers and overall business performance has improved. These variables statistically significantly predicted use of ICT in business growth, $F(16, 75) = 0.65, p < .0005, R^2 = 0.063$. All four variables added statistically significantly to the prediction, $p < .05$.

The regression model was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 \quad (\text{Significant level } 0.05) \quad (2)$$

where,

Y = Dependent variable (Success of Business)

β_0 = Constant (coefficient of intercept)

β_1 = Beta coefficients

X_1 = Able to manage business information better

X_2 = Able to surf for market information

X_3 = Communicate via email& social media to suppliers & customers

X_4 = Improved overall business performance

Table.6. Multiple Regression Analysis

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	0.114	0.064		1.177	0.008
Able to manage business information better	0.673	0.207	0.035	0.006	0.003
Able to surf for market information	0.0329	0.016	0.027	0.014	0.005
Communicate via email & social media to suppliers & customers	0.0245	0.003	0.013	0.005	0.001
Over all business performance has improved	0.0131	0.017	0.002	0.006	0.003

From the findings represented in Table.6 above, it can be revealed that the able to manage business information better, able to surf for market information, communication via email and social media to suppliers and customers and overall business performance has improved are significantly different from zero, since there have a p -value of less than 0.05. This study revealed that the use of computers in business had a high impact on Able to manage business information better with absolute t -values of $t(91) = 0.006$, $p = 0.0003$, Able to surf for market information with absolute t -values of $t(91) = 0.014$, $p = 0.009$, Communicate via email& social media to suppliers & customers with absolute t -values of $t(91) = 0.005$, $p = 0.0006$, and overall business performance has improved with absolute t -values of $t(91) = 0.006$, $p = 0.0003$.

6.3 EFFECT OF INTERNET USAGE ON BUSINESS PERFORMANCE IN THE INFORMAL SECTOR

On use of internet the variables looked into included ability to gather market information, reach more customers and suppliers, cheaper means of communication, ability to advertise and improved overall business. The R -square was found to be 0.623 meaning that the weighted value of the ICT usage explained approximately 62.3% of the positive change in business growth as shown in Table.7 below.

Table.7. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1	0.623	0.491	0.127	0.288

Analysis of Variance (ANOVA) was used to determine the linear relationship among the variables under investigation. Using this method, the sum of squares, degrees of freedom (df), mean square, value of F (calculated) and its significance level was obtained. The results are shown in Table.8 below.

Table.8. Analysis of Variance (ANOVA)

Model	Sum of Squares	Df	Mean Square	F-calculated	Sig.
Regression	0.105	6	0.046	1.613	0.0576
Residual	0.005	85	0.067		
Total	0.11	91			

The Table.8 above shows that the significance value is 1.613 which is higher than 0.05 thus the model is statistically significant in predicting usage of mobile phone in business growth at the 5% significance level.

A multiple regression was run to predict business growth from the use of internet specifically in ability to gather market information, reach more customers and suppliers, cheaper means of communication, ability to advertise and improved overall business. These variables statistically significantly predicted use of ICT in business growth, $F(6, 85) = 1.613$, $p < .0005$, $R^2 = 0.046$. All four variables added statistically significantly to the prediction, $p < .05$.

The regression model was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \quad (\text{Significant level } 0.05) \quad (3)$$

where,

Y = Dependent variable (Success of Business)

β_0 = Constant (coefficient of intercept)

β_1 = Beta coefficient

X_1 = Ability to gather market information

X_2 = Ability to reach more customers and suppliers

X_3 = Cheaper means of communication

X_4 = Ability to advertise

X_5 = Improved overall business performance

Table.9. Multiple Regression Analysis

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	0.044	0.002		2.062	0.015
Ability to gather market information	0.005	0.001	0.035	0.325	0.01
Ability to reach more	0.006	0.013	0.027	0.373	0.05

customers and suppliers					
Cheaper means of communication	0.001	0.018	0.013	0.245	0.08
Ability to advertise	0.0001	0.007	0.002	0.176	0.004
Overall business performance has improved	0.007	0.003	0.002	0.133	0.009

From the findings represented in Table.9 above, it can be revealed that the ability to gather market information, reach more customers and suppliers, cheaper means of communication, ability to advertise and improved overall business performance are significantly different from zero, since they have a p -value of less than 0.05. This study revealed that the use of internet in business had a high impact on the ability to gather market information with absolute t -values of $t(91) = 0.325$, $p = 0.025$, ability to reach more customers and suppliers with absolute t -values of $t(91) = 0.373$, $p = 0.031$, cheaper means of communication with absolute t -values of $t(91) = 0.245$, $p = 0.003$, ability to advertise with absolute t -values of $t(91) = 0.176$, $p = 0.0018$ and improved overall business performance with absolute t -values of $t(91) = 0.133$, $p = 0.0010$.

6.4 EFFECT OF BROADCAST MEDIA ON BUSINESS PERFORMANCE IN THE INFORMAL SECTOR

On use broadcast media the variables looked into include Ability to gather market information, watch/listen to educative programs on business management, get current affairs of the economy and improved overall business. The R -square was found to be 0.856 meaning that the weighted value of the ICT usage explained approximately 85.6% of the positive change in business growth as shown in Table.10 below.

Table.10. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1	0.856	0.691	0.328	0.1877

Analysis of Variance (ANOVA) was used to determine the linear relationship among the variables under investigation. Using this method, the sum of squares, degrees of freedom (df), mean square, value of F (calculated) and its significance level was obtained. The results are shown in Table.11 below.

Table.11. Analysis of Variance (ANOVA)

Model	Sum of Squares	Df	Mean Square	F-calculated	Sig.
Regression	0.012	3	0.084	2.571	0.0657
Residual	0.087	88	0.035		
Total	0.189	91			

The Table.11 above shows that the significance value is 0.0657 which is higher than 0.05 thus the model is statistically

significant in predicting usage of mobile phone in business growth at the 5% significance level.

A multiple regression was run to predict business growth from the use of broadcast media specifically in Ability to gather market information, watch/listen to educative programs on business management, get current affairs of the economy and improved overall business. These variables statistically significantly predicted use of ICT in business growth, $F(3, 88) = 2.571$, $p < .0005$, $R^2 = 0.084$. All four variables added statistically significantly to the prediction, $p < .05$.

The regression model was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 \quad (\text{Significant level } 0.05) \quad (4)$$

where,

Y = Dependent variable (Success of Business)

β_0 = Constant (coefficient of intercept)

β_1 = Beta coefficients

X_1 = Ability to gather market information

X_2 = Ability to reach more customers and suppliers

X_3 = Cheaper means of communication

X_4 = Improved overall business performance

Table.12. Multiple Regression Analysis

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	0.643	1.245		1.375	0.006
Ability to gather market information	0.435	0.154	0.035	0.061	0.003
Ability to reach more customers and suppliers	0.072	0.032	0.073	0.013	0.002
Cheaper means of communication	0.091	0.084	0.064	0.007	0.003
Overall business performance has improved	0.074	0.019	0.062	0.003	0.004

From the findings represented in Table.12 above, it can be revealed that the Ability to gather market information, watch/listen to educative programs on business management, get current affairs of the economy and improved overall business are significantly different from zero, since there have a p -value of less than 0.05. This study revealed that the use of broadcast media in business had a high impact on Ability to gather market information with absolute t -values of $t(91) = 0.061$, $p = 0.056$, Ability to reach more customers and suppliers with absolute t -values of $t(91) = 0.013$, $p = 0.029$, Cheaper means of communication with absolute t -values of $t(91) = 0.017$, $p = 0.0036$, and Overall business performance has improved with absolute t -values of $t(91) = 0.003$, $p = 0.026$.

6.5 OVERALL EFFECT OF ICT SERVICES ON BUSINESS PERFORMANCE IN THE INFORMAL SECTOR

The variables were Mobile phones, Computers, Internet and Broadcast media. The *R*-square was found to be 0.769 meaning that the weighted value of the ICT usage explained approximately 76.9% of the positive change in business growth as shown in Table.13 below.

Table.13. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1	.769	.591	.227	.2777

Analysis of Variance (ANOVA) was used to determine the linear relationship among the variables under investigation. Using this method, the sum of squares, degrees of freedom (*df*), mean square, value of *F* (calculated) and its significance level was obtained. The results are shown in Table.14 below.

Table.14. Analysis of Variance (ANOVA)

Model	Sum of Squares	Df	Mean Square	F-calculated	Sig.
Regression	0.112	3	0.056	2.723	0.0639
Residual	0.077	88	.077		
Total	0.189	91			

The Table.14 above shows that the significance value is 0.0639 which is higher than 0.05 thus the model is statistically significant in predicting usage of ICT in business growth at the 5% significance level.

A multiple regression was run to predict business growth from the use ICT services specifically Mobile phones, Computers, Internet and Broadcast media technology. These variables statistically significantly predicted use of ICT in business growth, $F(3, 88) = 2.72, p < .0005, R^2 = . 0.769$. All four variables added statistically significantly to the prediction, $p < .05$.

The regression model was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 \quad (\text{Significant level } 0.05) \quad (5)$$

where,

Y = Dependent variable (Success of Business)

β_0 = Constant (coefficient of intercept)

β_1 = Beta coefficients

X_1 = Use of Mobile phones

X_2 = Use of Computers

X_3 = Use of Internet

X_4 = Use of Broadcast Media Technology

Table.15. Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.562	1.376		15.464	0.015
Use of Mobile phones	0.013	0.012	0.153	3.954	0.008
Use of Broadcast Media	0.899	0.176	0.067	2.062	0.005
Use of Internet	1.142	0.045	0.366	1.773	0.008
Use of Computers	1.042	0.015	0.254	0.142	0.0132

From the findings represented in Table.15 above, it can be revealed that the use of Mobile phones, Computer, Internet and Broadcast media technology are significantly different from zero, since there have a *p*-value of less than 0.05. This study revealed that the highest impact on the success of the business is dependent on use of Mobile phone with absolute *t*-values of $t(91) = 3.954, p = 0.015$, use of broadcast media with absolute *t*-values of $t(91) = 2.062, p = 0.009$, use of internet absolute *t*-values of $t(91) = 1.773, p = 0.0036$, and use of computers with absolute *t*-values of $t(91) = 0.142, p = 0.002$.

7. DISCUSSIONS

The results of this study collaborate with the empirical and theory reviews. The study contributes to the Empirical studies [21]-[24] by analyzing the effect of mobile phones, computers, internet, and broadcast media on the business performance in the informal sector. The above studies mainly focused on the access levels and usage of ICTs by the Small and medium enterprises. The Technology Adoption Model [25] an information systems theory that models how users come to accept and use a technology through its perceived ease of use and perceived usefulness of a technology has helped explain the different access levels of mobile phone, broadcast media (TV/Radio), internet and computers in the informal sector. The Diffusion of Innovations theory [26] explains the reason for the slow uptake of computers. The 27.5% access level can be said to be comprised of the innovators, the early adapters and a few early majority. The four key constructs of UTAUT [27] namely: performance expectancy, effort expectancy, social influence, and facilitating conditions help explain the varying diffusion rate for the four ICTs.

8. CONCLUSION

This researcher's main objective was to assess the effect of ICT usage on the business performance in the informal sector in Kenya. The results of this study showed that ICT usage had a positive influence on the business performance in the informal sector with mobile phones and broadcast media having a higher

impact and computers and internet having less impact. Statistically, the four ICTs usage explained approximately 76.9% of the positive change in business growth. Specifically, mobile phone usage was found to explain 93.6%; computer usage 53.4%; internet usage 62.3% while broadcast media explained 85.6% positive change in business growth. The study also revealed that there were challenges experienced in the use of ICT services. The challenges that were common among the four ICT services were: High tariffs such as the cost of making a call, accessing internet or paying for TV; Connectivity/Network issues such as poor network, slow internet speeds, blurred clarity of TVs during rainy seasons; Service failures like voice, SMS, and mobile money services; Security issues such as exposure to cyber-crime like virus attacks, identity theft, and exposure to pornography. This leads to the conclusion that to leverage on the gains of ICT usage in business, there is need for ICT regulator's intervention through the review of the ICT policies and regulations to help protect the consumers at the same time enhance the diffusion rates of the ICT services in the informal sector.

9. RECOMMENDATIONS

The study recommends that there is need for the government through the regulator i.e. Communications Authority of Kenya and ICT authority to come up with policies and regulations that favor the informal sector such as preferential tariffs, development of TV and radio programs that offer education on business management; roll out of digital centers and ICT schools offering computer classes at a small fee. The study also recommends that the regulator needs to strictly monitor of the quality of network and services offered by the ICT operators. The findings of the study showed that security issues such as loss of mobile phones, impersonation, cybercrimes such as virus attacks, identity fraud, exposure to pornography were a major concern by the ICT users in the informal sector, the regulator needs to drive consumer education programs both from the ICT operator level and regulator level to help users learn about information security.

To improve the diffusion rate of computers and internet, the regulator needs to come up with initiatives to lower the costs of ICT equipment and data tariffs. The government of Machakos county need to partner with ICT providers to come up with SMS based solutions that can serve the need of the informal sector like SMS based license payments. The non-governmental organizations can partner with the county government to sponsor ICT schools. The research focused on the effect of ICT usage on business performance in the informal sector in Mlolongo Township. Similar studies can be done in other towns. The researcher also recommends that further study on the awareness levels of cyber security amongst the ICT users in the informal sector be carried out. Further study can also be done on the challenges of ICT usage in the informal sector.

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