

Effect of Information Technology on Employee Productivity in Selected Banks in Kenya

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Abstract

This study sought to offer a better, clearly understood perspective on the effect of Information Technology (IT) on the employee productivity in the selected banks in Nairobi, Kenya. Descriptive research design was preferred as it permits gathering of data from the respondents in natural settings. The target population of interest was 540 employees in the three selected banks in Nairobi Kenya. A Probability sampling technique was employed using stratified random sampling to sample 150 employees to participate in the study. The data which was obtained by use of questionnaires was collated to determine the quality and robustness in analysis and then analyzed using SPSS. Regression analysis was employed in assessing the association existing between predictor variables and the employee productivity the dependent variable. The study established that IT has a positive as well as statistically significant influence on employee productivity of the banks. From these findings, it is evident that an increase in the application of IT results to increased employee productivity. The study recommends that the commercial banks in Kenya should increase their innovative capability due to the business dynamics. Therefore, in order to support and to uphold an enhanced capability, innovation ought to be among the main priority areas of top management level executives of the commercial banks in order to enhance employee productivity.

Keywords: Employee productivity, Information Technology, Mobile banking, Internet banking

1.1 Introduction

Information technology (IT) presents a paramount platform on which to enhance any country's economic competitiveness. It is widely agreed that IT has a considerable beneficial influence on firms' productivity which can only be achieved if the same is well understood and adopted. It remains imperative to adequately comprehend the influence IT has on productivity in the banking sector (Oliveira and Martins 2009). Technological changes like the use of among other innovations, Internet-Banking, Automated Teller Machines, Electronic Funds Transfer and credit cards are fast establishing considerable changes in the banking sector replacing traditional methods. Singh, Chhatwal, Yahyabhoy and Yeo (2002) recognize that being in a very competitive industry, banks may not have the ability to use price to differentiate themselves but e-banking serves the purpose of differentiation strategy to meet the competition. Banks need to be well-versed in IT, its importance and how it is applied in order to meet the emerging international competition (Cooper and Zmud 2003). Private and foreign banks have been the first adopters of technological innovations thus enjoying the benefits of improved efficiency and customer satisfaction. On the other hand, the public sector banks are holding on to the competition. In the process of organization growth, organizations will experience change. According to Ahituv and Giladi (2006), failure to use proper techniques can be a challenge in implementing change. He further goes ahead to state that stress can be reduced if efficient ways are used to introduce and implement the needed change.

1.2 Information Technology and Employee Productivity

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There has been a debate whether information technology has an effect on employees productivity. According to Applegate and Mills (2010), technology is revolutionizing how business is being conducted in the world. Further they state that if introduction of IT does not deliver the intended return; there may be three possible casual factors. One is that the employees were not engaged in implementing or accepting the IT introduced by the organization. Two, the leaders were not successful in connecting employees to the use of IT and lastly your business system did not adequately support the IT. The rise in the use of technology within the banking sector has resulted into a considerable improvement in the day to day performance and therefore the concept of E-banking has now become a crucial element in the present day banking initiatives. As Banker and Kauffman (2009), Adoption of technology in the banking industry has enabled them to provide better and improved services in relation to online banking which is time saving. E-banking enables customers to access key services such as their bank accounts and the accompanying information on the products and services offered by banks using various avenues this dhas eliminated unnecessary services like sending letters, signing, use of faxes as well as use of telephone (Applegate & Mills, 2010). The use of ICT further enhance the operation speed, quality of communication, management timeliness, gaining the illusive competitive edge and product quality improvement in the industry in which the company is operating. They also established the advantages of the adoption of electronic banking whereby they noted that e-banking enables bank customers to have a diversity of advantages financially including among others, enhanced deposit rates, lowered transaction fees as well as promotional opportunities. Customers are also able to save time wasted in transactions especially when queuing up as well as the use of paper documents. The technology further offers bank customers the opportunity to use electronic data other than communication with the attendants since necessary details are available at the website and online banking enables customers to access the information immediately. Based on service attributes consumers have a positive perception of technology because they think technology will always provide more efficient service as compared to that of a bank employee (Brand and Duke 2011). More so in the evaluation of technology based services reliability and user-friendliness of the technology is crucial.

1.3 Objective of the Study

The study sought to address the following questions.

What is the impact of Automated teller machines on employee productivity?

What is the effect of mobile banking of employee productivity?

How has internet banking impacted on employee productivity?

What is the effect of electronic funds transfer on employee productivity?

2.1 Literature Review

Most firms have adopted IT in their operations so as to be more efficient and productive. In the last three years, the banking industry has invested in innovative IT based solutions in order to raise its operational efficiencies to guarantee a better customer experience, better trading experience and share value (Applegate and Mills 2010). It should be noted that such changes in adopting the information technology to better customer service. New electronic service like money transfer, internet banking, or hello money affects employee productivity (Ayres 2006). According to Stabell (2007), in the past both the scholarly and commercial journalists have looked into the productivity necessitated by usage of computers and concluded that in the US economy computing power has increased. Moreover, a considerable number of empirical findings report a positive statistical association between IT and different aspects of profitability. However, contrary findings have been reported by Berndt and Morrison (2008). On the other hand, Jorgenson and Stiroh (2006) show that computer-acquired capital compared to the physically acquired capital contribute to growth more in the related time. Hitt and Brynjolfsson (2009) further found a positive association between IT and output. It has been ascertained that IT has a direct influence on fiscal performance as shown by various researchers (Berndt and Morrison, 2008). Strategic management in financial institutions calls for an effective systems to address impulsive happenings that can maintain their operational activities while at the same time keeping at minimum the risks involved. Survival is guaranteed only to banks that have the capability to adapt latest technological innovations into their business operations. Among the change agents that have significantly influenced banks' performance include innovations such as the internet and other gadgets like mobile phones. There has been many changes from the inception of e-banking in the Kenyan financial institutions (Njuguna, Ritho, Olweny, & Wanderi, 2012). Significant amounts of money have been invested on IT solutions by a number of Kenyan financial institutions.

Banking operations have been made more efficient and cheaper with the use of information technology but this has not been possible without some fair amount of challenges which include loss of a significant amount of banks' resources to among among them stolen cards, fraud and counterfeit (Magutuet al, 2011).

2.2 Customer Service

A successful service brings about satisfaction to the customers (Levvesque& McDougall, 2000). Crannage (2004), argues that if a service provider meets and exceeds customer expectations then the customer is satisfied. According to Johnston (2004), when customers receive excellent services they are usually delighted and in turn creates a closer association flanked by the purchase and the seller. According to Johnston (2004) 50% of individuals who come up with problem handling as result of excellent service indicate that setback management after disagreements results in delighted customers since the customer will express their opinions. Most companies in the services sector have their own research and development departments intended to determine the quality of service levels that leads to customer satisfaction and relationship (Kettinger & Lee, 2007; Pitt et al., 2008; Watson et al., 2008). These departments are planned to enable the management deliberate on services provided and rapport building proposals effectively. They provide crucial information which is used to guide effort in reducing unpredictability in value of the service and to offer clientele the services need to ensure their unrelenting support. These are key elements in customer service and providers of IT services ought to pay more attention and thus resolving problem promptly..

2.3 Controls

Information Technology influences internal control (that is, the environment, risk, activities, information, communication and monitoring) and it provides guidelines and best practices to be used in assessing methods obtainable to enable the effective performance of internal auditing tasks. Yang and Guan (2004) on the evolution of auditing discussed the advancement of technology, which in turn add to the standards of internal control and IT auditing. Jayalakshmy et al. (2005) identified the pressures internal auditors would potentially experience in the era of globalization and drawbacks in an effort to preserve the belief and honesty. Roufaiel and Dorweiler (2014) were also of the opinion that bookkeeping indecision and standards alterations over time have influenced auditors in putting forth objective opinion. According to Romas and Rolandas (2005) it is crucial to appreciate the demands and aspirations of the in house and outside decisiosn makers in internal audit function. This fact is also supported by Ruud and Bodenmann (2010)

2.4 Sales

There has been a significant changes in organizations in relations to their models of their entrepreneurial transformation in order to establish, develop and maintain their productive and strategic activities (Achrol and Kotler, 2009; Prasad et al., 2001; Trim, 2002). Innovation of product is recognized as one of the key factors during the creation of value (Han et al., 2006; Weerawardena, 2007). Thus, Froehle et al. (2012) and; Schilling and Hill (2008) pointed out that, for firms to improve their competitive situation, novelty or restoration of their product portfolio is key in order to increase consumer satisfaction and loyalty (Atuahene-Gima, 2006, et al., 2009). In today's dynamic market-driven environment, production innovation should be prioritized and developed quickly for the company to remain competitive despite the fact that product innovation is complex and requires capital and human resource inputs (Rangaswamy and Lilien, 2007). Han et al.(2006), Hillebrand and Bieans (2004), Johne and Storey (2007), Kahn (2001), Rothaermel (2001) and Weerawardena (2013) suggest that the success of new product development is brought about by the collaboration flanked by various environmental agents and the accessibility of market-based information. IT use has brought about a fundamental transformation which is crucial at all organizational levels, and this has been made possible by the use of IT with the marketing function been the main beneficiary (Bond and Houstton, 2003)

2.5 Automated Teller Machine

Automatic Teller Machine (ATM) is a device which comprises of an input device into which items can be deposited. It also has an imaging and sorting device which sorts deposited items to determine whether the deposited items are banknotes or cheque (Davis 2003). ATMs enjoy wide acceptance by customers of banks since they can offer the same services as the bank tellers thus reducing the time taken in the banking halls. Tufano, (1989) carried out a research on financial innovation and first mover advantages with the objective of the study being to determine whether financial products innovators enjoy first mover advantages.

The researcher concluded that the innovators that created new financial products, in the initial stage did not charge higher prices until imitative products appeared and in the long run charged lower than rivals hence leading to losses. Agboola (2001) carried out a study that showed that there were positive impacts of ATM on the banking performance. In this study bank turnover and profits were used as a measure of the performance and the outcome was that the banks with high profit growth were using IT through the use of ATMs. In long-term e-banking led to higher profits as opposed to short-term due to high IT investment cost. Rogers, (2003) in his analysis of financial performance of Kenyan commercial banks showed that risk management was central to any commercial bank for it to be register consistent profits and in turn higher shareholders 'returns.

2.6 Mobile Banking

The speed at which technology is developing has created a major occasions for providers of fiscal services to provide services through several electronic channels with mobile phone being among the most preferred platforms for using monetary services by bank consumers (Karjaluo and Pento 2007). Customers are able to access their account balances, make bill payments, airtime top up, account links, deposit money to their accounts and other customers' accounts at the comfort of their offices without having to visit the banking halls . This has improved employees' productivity since they can concentrate on innovating better products for their customers due to the fact that no long queues are in the banking halls. Mobile banking has helped in enhancing ubiquity, reachability, personalization and convenience to the customers.

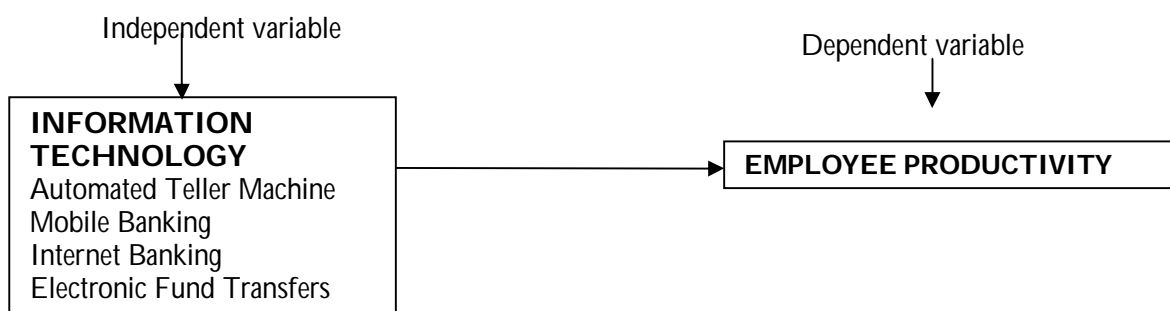
2.7 Internet Banking

In an effort to serve their customers better banks have adopted internet banking which is a self-service technology which has been availed to enable access banking services conveniently. Internet banking help in accessibility, confidentiality, convenient services and is a less complex procedure which enables consumers to transact at the comfort of their offices as stated by Egwali (2008). Internet banking flexibility will enable the customers to access their accounts at their convenience and thus giving the banks additional revenue, improving on customer satisfaction and reduce customer queues at the Banking halls. Freedman (2000) observes that banking through the internet is composed of three key appliances, network money, value cards and access to new devices and therefore banking by internet is just the adoption of new tools and is hence not taken much consideration as much. Santomero and Seater (2007), Prinz (2009) and Tarkka (2005)demonstrates models which show that an internet substitute for currency is likely to crop up and grow but this will depend on the characteristics of different technology and the users of the technology.

2.8 Electronic Funds Transfer

This is a fund transfer system which facilitates electronic funds transfer between the sender and the recipient by means of an intermediate trusted third party. Retailers and financial institutions have adopted electronic fund transfer as an alternative to the costly, time-consuming, and inconvenient paper-based check system. A consumer makes an electronic bill payment from his financial institution account to another financial institution account intermediary for a certain amount. This has been necessitated by the use of information technology and has expanding bank customers' access to their funds.

Figure 1: Conceptual Framework



3.1 Methodology

This study utilized descriptive research design to analyze the effect of Information Technology on employee productivity in the selected banks in the three branches in Nairobi Kenya. The study employed descriptive research which involved the investigation whereby quantitative data was collected and analysis done . The population of study constituted of 540 employees of three selected banks as the population of interest. The study employed the stratified sampling technique, in which case members of the target population are divided into uniform divisions prior to sampling. The three selected banks form the stratum in the study. The study sampled 150 respondents. The study relied on the primary data which was collected by use of a questionnaire. Questionnaire was favorable for the study because it is easy to understand, administer, people are free to give their opinion and one does not need to travel a lot since the questionnaire was hand delivered. Primary data is gathered from individuals who experience the events or by a researcher who participates in the event Kombo and Tromp, (2008). Structured questionnaires were used in collecting data. Questionnaire was favorable for the study because it is easy to understand, administer and people are free to give their opinion. Responses were captured in a five-point –Likert scale. The researcher carried out a pilot study on employees of Barclays Bank of Kenya to test the efficacy of the research and establish the validity. To measure the internal consistency and reliability of the data the researcher used Cronbach’s alpha. In this research the researcher used quantitative analysis whereby multiple regressions was used to show the relationship between employee productivity the dependent variable and IT the independent variable. Once the data was collected, SPSS was be used to analyze the data

The model specification

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon \dots \dots \dots (i)$$

Where

Y is Employee Productivity, x_1 is Automated Teller Machine, x_2 is Mobile Banking, x_3 Internet Banking and x_4 is Electronic Funds Transfer.

4.1 Findings

4.2 Response Rate

The respondents who participated in the survey is was 150 out of which the total questionnaire that were fully filled and returned to the researcher were 145 representing 96.7%,. Majority of the respondents were male accounting for 60.7% (n=88) and the female respondents accounted for 39.3% (n=57).

4.3 Consistency of the Data

The reliability of the data was conducted by a cronbach alpha test that showed an 0.891 suggesting that the items have relatively high internal consistency since it is higher than 0.70 which is the acceptable in research.

Table 1: Consistency and Reliability of the Data

Reliability statistics	
Cronbach's Alpha	Number of items
0.891	5

4.4 Relationship between Employee Productivity and IT

4.4.1 Model Summary

Table 2 gives the regression model summary results. It presents the R value which is the measure of association flanked by the dependent as well as predictor variables, the obtained R Squared which is the coefficient of determination of the regression results.

Table 2: Regression Model Summaries

Model	R	R squared	df	Sig.
1	0.981	0.962	4	.002

Table 2, there is a strong and positive association between the dependent variable (employee productivity) and the independent variables (Automated Teller Machine, Mobile Banking, Internet Banking and Electronic Funds Transfer). This is as given by the R value of 0.981 revealing the strength of the association. The coefficient of determination (R Square) in the table is 0.962. This value explains that, holding other factors (not mentioned in the study) constant, the value of the Automated Teller Machine, Mobile Banking, Internet Banking and Electronic Funds Transfer contributes to 96.2% of the variance in the employee productivity of the commercial banks while the other factors accounting for 3.8% of the variability (1-0.962). The variation due to the studied variables (98.1%) is very high and therefore can be relied on to explain the changes in the employee productivity of the commercial banks in Kenya.

4.4.2 Regression Coefficients

In order to respond to the proposed model for the relationship between employee productivity of commercial banks and the independent variables, the regression coefficients were calculated and presented in table 3. These with their significance values (also given in the table) measure the influence of each independent variable to the employee productivity of the banks (dependent variable).

Table 3: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.227	.052		1.776	.001
Automated Teller Machine	2.141	.024	.877	1.001	.010
Mobile Banking	1.321	.051	2.401	1.090	.005
Internet Banking	0.257	.566	2.220	1.005	.009
Electronic Funds Transfer	0.698	.074	1.810	1.122	.003

a. Dependent Variable: employee productivity

The regression test results presented in the table 3 indicate that, all the coefficients are positive and are also significant as given by their p-values (sig. values) which are all less than 0.025 testing at 5% level with a 2-tailed test. Thus, with these values being less than the critical value at 5% level, the coefficients are statistically significant and explain significant influence of the independent variables to the employee productivity of the banks. These coefficients therefore are used to answer the following regression model which relates the predictor variables (independent variables) and the dependent variables;

Equation -----(ii)

$$Y = 1.227 + 2.141 X1 + 1.321X2+ 0.257 X3 + 0.698X4$$

Thus, the model indicates that, holding the predictor variables constant, the employee productivity of commercial banks would be 1.227. This explains that, without the influence of the value of Automated Teller Machine, Mobile Banking, Internet Banking and the Electronic Funds Transfer, the employee productivity value of the commercial banks would be 1.227. Also, the model shows that, a unit increase in the Automated Teller Machine results to 2.141 times increase in the banks' employee productivity. Thus the two variables are positively related with a magnitude of 2.141 explaining the extent of influence to the dependent variable. From the model developed also, it is clear that a unit change in the value of mobile banking will lead to a 1.321 times direct changes in the banks' employee productivity. This indicates that, the value of mobile banking and the employee productivity of the commercial banks are positively related where increasing the value of liquidity risk will give a corresponding increase of 1.321 times to the employee productivity. Further, the model indicates that, the coefficient of the value of electronic funds transfer and the employee productivity of the commercial banks is 0.698. This reveals that, given a unit increase in the value of the electronic funds transfer, the employee productivity of the commercial banks will be affected by 0.698 times increase consequently. Thus, the two variables are positively related.

4.5 Test of Significance

The significance of the relationship between the dependent and the independent variables in this study was tested at 5% confidence level using a chi-square test. The critical significance value at this level was set at 0.025 in a 2-tailed test. Thus, with a significant value below this value (0.025), the results reveal the significance of the relationship. The chi-square test results for the significance of the relationship between employee productivity and the independent variables are as presented in table 4

Table 4: Chi-Square Test for the Relationship between the Variables

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.120 ^a	432	.001
Likelihood Ratio	10.012	432	.000
Linear-by-Linear Association	2.471	1	.005
N of Valid Cases	145		

Based on the table 4 results, significance test results indicate a Pearson chi-square value of 25.120 with 432 degrees of freedom at 5% confidence level. The significance value is 0.001 which is less than the critical value (0.025) in a 2-tailed test. Thus, based on these results there exists a statistically noteworthy association flanked by the employee productivity of the commercial banks and the Automated Teller Machine, Mobile Banking, electronic funds transfer of the commercial banks and Internet banking.

5.1 Conclusion

This study examined the effect of information technology on the productivity of the employees. The research has also identified the significance of having an effective use of IT in which the efficient the asset application of IT the higher the employee productivity. Given the relatively high competition in the banking industry in Kenya, overall use of information technology is positively related to employee productivity. In the same line, the study found that electronic funds transfer is positively as well as evidently related with employee productivity. The study has accounted for the use of information technology in the commercial banks in Kenya as essential in determining the employee productivity. It has established that there exists a straight association flanked by employee productivity and mobile banking and internet banking as well as the electronic funds transfer. The researcher therefore based on the findings presented in the above section makes conclusions regarding the effects of information technology on employee productivity on the commercial banks in Kenya. In general, the both ATM and other IT applications in banking sector influence positively employee productivity in commercial banks in Kenya. This significantly affects the performance of the employees which also influence their competitive advantage. Results from the data collected discovered that ATMs use had a positive and significant effect on employee productivity of the banks. From these findings, it is evident that an increase in the application of IT results to increased employee productivity. In conclusion, ATMS, mobile banking, internet banking and electronic funds transfer are vital variables factors influencing banks' employee productivity.

5.1.1 Recommendations for Policy

From the findings of this research, the researcher recommends that due to the dynamics in the application of information technology, the commercial banks should empower employees in terms of motivation to tap their skills in use of IT in order to enhance their strategies in offering financial services to their customers leading to their increased profitability and financial effectiveness. The study recommends that commercial banks in Kenya need to remain profitable by enhancing their asset base through sensitization of the customers to apply both mobile and internet banking to be used at the comfort of their seats at home in order to reduce longer queues usually seen in the banking halls. As the results showed, higher profitability is positively related to high rate of IT use. The commercial banks in Kenya should increase their innovative capability due to the business dynamics which enables firms to attain a towering competitiveness level in both the state and global market. Therefore, how to support and maintain an improved novelty ability ought to be the key priority areas of key executives of the commercial banks as well of the regulatory agents of the sector in order to enhance employee productivity.

The study also recommends that the commercial banks ought to make it possible for staffs to be creative in their functions so as to have a competitive edge through creation of innovative services (financial) leading to increased financial performance and growth of the sector hence improved employee productivity.

5.1.2 Recommendation for Further Areas of Research

Since the study variables only account for 98.1% of the changes in the employee productivity, it means that 1.9% of the banks' employee productivity is determined by other factors. Therefore, a study should be done using different variables to determine their effect on employee productivity. Some of the factors can be board of Directors composition, skills and qualifications of the staff, values of collateral used and automations of the operations. This study recommends that a study be done to replicate other sectors of the economy in Kenya especially to the small and medium enterprises to find out the effect of information technology on the employee performance of the firms.

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