Influence of Technological Innovation on Financial Performance of Deposit Taking Microfinance Institutions in Nairobi County

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ABSTRACT

The purpose of this study is to examine the influence of technological innovation on financial performance of Deposit Taking Microfinance Institutions (DTMFI's) in Nairobi County, Kenya. Research was guided by the following research objective: Does technological innovation affect microfinance institutions' performance in Nairobi? The study adopted a quantitative methodology and a descriptive research design. The target population and sample were 132 which was selected through a census method. A Likert scale type questionnaire was used to collect data. A sample of 103 participants out of the 132 took part in the study. The findings of ANOVA results revealed regression was significant at p-value (0.000). The correlation matrix between financial performance and technological innovation revealed that there is a significant and positive relationship between financial performance and technological innovation at p (0.000) and r (.573**). This therefore showed that technological innovation has a positive influence on financial performance. The study concluded that technological innovation is significant in enhancing the financial performance of deposit-taking microfinance institutions. Therefore, there is a likelihood of increased financial performance in DTMFI's if they can integrate technology. The study further recommended that use of technology would go a long way in streamlining DTMFI's core services of money management and movement, lending, investments and savings.

Keywords: *Technological innovation, Financial performance, Deposit Taking Microfinance Institutions, Resources, Lending and Savings.*

Introduction

A microfinance institution is a financial institution that provides small loans to people who otherwise would not have access to credit (Lee, 2017). An estimated 1.7 billion people around the world do not have access to financial services (Teeboom, 2019). This sector is vital to the development agenda of countries because it makes finances accessible to this population. The success of microfinance has been reported to help millions of people live above the poverty line. Specifically, it improves livelihood, health care, housing improvements, small business creation, and other needs of people living below or near a poverty level income worldwide (Ibid.). In Bangladesh, for example, there are 20 million micro-borrowers whose lives have been lifted out of abject poverty (Njiraini, 2015).

In Sub-Saharan Africa, microfinance has become a lifeline for low-income earners in countries like Benin, Rwanda, Senegal, and Tanzania (Njiraini, 2015). Governments in these

countries appreciate the impact of microfinance and have enacted favorable laws that encourage investments and policies to protect customers. In Kenya, microfinance co-exists alongside formal and informal financial markets. The formal financial markets include commercial banks, development banks and credit institutions who mainly exist in urban areas and offer a narrow range of financial services. On the other hand, microfinance institutions have existed for many years in rural and low-income urban areas to bridge the financial resource gap between the formal financial institutions and the economically poor. Through this service, they have been an effective tool of reducing poverty and contribution of economic growth (Warue, 2015).

While microfinance institutions show success in Kenya, a report from the Central Bank of Kenya indicates that microfinance banks' profit before tax have been declining. For example, the profits decreased by 169 percent from KSh. 549 million for the fiscal year ending in December 2015, and a loss of KSh. 377 million for the period ending in December 2016 (Central Bank of Kenya, 2017). This decline shows there is a problem and so this study sought to investigate the extent to which technological innovation affects financial performance of deposit-taking microfinance institutions in Nairobi.

Statement of the Problem

Lack of capital is the main challenge that poor households face, and if it can be addressed, it is possible for those households to break free from persistent poverty. Microfinance institutions (MFIs) step in to provide finances to under-served populations to break the vicious chain of poverty. Unfortunately, MFIs face their own challenges as they address the needs of economically marginalized people when offering affordable credit services. Reports indicate that some MFIs face decline in profits, financial instability, uncontrolled growth, systemic frauds and methodological flaws as they conduct their businesses (Aswani, 2018). The intention of this study was to establish the influence of technological innovation on financial performance of Deposit-Taking Microfinance Institutions in Nairobi County.

Objective of the Study

The purpose of this study was to find out to what extent technological innovation affects financial performance of deposit taking microfinance institutions in Nairobi.

Study Question

This study was directed by the following research question: Does technological innovation affect financial performance of deposit taking microfinance institutions in Nairobi County?

This was important to ascertain whether technology can be a solution to the financial losses incurred microfinance institutions as reported by Central Bank of Kenya in 2017. This is especially necessary in the rise of new digital technologies that are being adopted to do business better, faster, and cheaper.

Literature Review

This section provides an overview of the theories underpinning this study and further examines the theoretical influence of technological innovation on the financial performance of DTMFIs.

Complexity Theory

Complexity science is the application of the models from complexity theory to various different domains of science. Complexity science, which is emerging as the most coherent post-Newtonian framework within contemporary science, is a set of theoretical frameworks used for modeling and analyzing complex systems within a variety of domains. Since its emergence during the seventies and eighties, complexity theory has been used in many different areas where it is proving quite relevant, given the rise of societal complexity brought about by globalization, IT and growing environmental awareness (Colchester, 2016).

It is widely thought that complex systems are virtually impossible to control or predict with any great accuracy due to the number of their components, the degree of nonlinear interaction, and co-evolution that produces the emergence of unforeseen structures as the system evolves (Park, 2017). Thus, as opposed to traditional methods of management that try to predict and control the outcomes through direct intervention, complexity management takes a more holistic approach, focusing more on creating the systemic conditions for success to emerge.

Systems design is the application of systems theory and complexity theory to the design of technical systems. Systems design takes a holistic interdisciplinary approach to the development of complex projects to incorporate both social and technical factors whilst understanding product or technology within a whole life cycle perspective (Colchester, 2016). Complexity theory can provide awareness into how organizations become more sustainable, adaptive, and innovative (Park, 2017). During the present period of globalization and technological progress, the Deposit Taking Microfinance Institutions sector need to upgrade its management system by using latest information and communication tools such as mobile banking and internet banking in transacting and ease of communication with the customers. Moreover, for them to be profitable, they need to use technological innovation such as Enterprise Resource Planning system (ERP) to improve their performance so that they attract new customers and meet their financial needs efficiently.

Technological Innovation

Technological innovation refers to the process in which a new idea is incorporated in tools, devices, or procedures that are of practical value to society. Innovation is the application of new solutions that meet new and existing requirements in articulated or existing market needs (Chaarani & Abiad, 2018). They are achieved through new effective products, processes, services, technologies, or ideas that are readily available to markets, governments, and society (Chaarani & Abiad, 2018). According to Kylliäinen (2019), the purpose of innovations is to increase productivity and generate greater output with the same input. They are a key factor on the firms' competitive advantage as well as a critical element in improving the economic and financial results of firms. Indeed, it has been reported that in firms that adopt technological innovations, their economic and financial performance has improved. For instance, the banking sector have shown improved use of technology in its management system and communication

tools to improve their performance level by attracting new customers and satisfying them (Chaarani & Abiad, 2018).

A bank that is advancing to grow has to be ready to adjust to the evolving economic, financial, and productive context. Among them is adoption of emerging technologies because today's customers are digital savvy (Campanella et al., 2017). Bell (2018) reckons that increasingly, customers expect banks (and all other providers of financial services) to respond to this irresistible and inevitable trend. As such, successful banks of the future will need to build around technology so that they can streamline their core services of money management and movement, lending, investments, and savings and improve their internal efficiencies and performance (Bell, 2018).In this regard, microfinance institutions must necessarily adopt technology so that they can improve their processes, bring new and improved products and services to market, keep their operations efficient and, most importantly, improve their profitability.

Methodology

The study adopted a quantitative method and a descriptive research design. The target population of the study was 132 and census sampling method was used. Questionnaires were used to collect data. Cronbach Alpha reliability test of 0.769 was established showing that the instruments were valid. Statistical package for Social Sciences (SPSS version 23) was used to analyze that data and descriptive statistics were presented in percentages, means and frequencies. Regression analysis was used to determine the effects of technological innovation to financial performance of deposit-taking microfinance institutions.

Results

In this section, the findings of the study, both descriptive and inferential statistics are discussed.

Response Rate

A total of 103 questionnaires were returned out of 132 questionnaires that were administered to the targeted participants, people employed in DTMFI's. This denoted a 78 percent response rate as shown in Table 1.

Table 1: Response Rate

Variable	**Frequency**	**Percentage**
Filled in and retrieved	103	78
Not retrieved	29	22
Total	**132**	**100**

Descriptive Statistics

Table 2: Technological Innovation and Financial Performance

	Technological Innovation	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
1	The management is keen on integration and use of new technology in this organization	49 (38%)	44 (42.5%)	4 (3.8%)	4 (3.8%)	2 (1.9%)
2	When there are new technological inventions, users undergo training.	38 (36.9%)	49 (47.6%)	9 (8.7%)	1 (1%)	4 (3.8%)
3	The leadership is keen on using new digital technologies to do business better, faster, and cheaper	40 (38.8%)	40 (38.8%)	10 (9.7%)	3 (2.9%)	10 (9.7%)
4	The management has allocated resources and finance for technological innovations	42 (40.8%)	41 (39.8%)	9 (8.7%)	1 (1%)	10 (9.7%)

Results presented in Table 2 show the responses to the question on whether the management was keen on integration and use of new technology in their organization. The respondents' responses were as follows;

1. *The management is keen on integration and use of new technology in this organization*: 38% strongly agreed, 42.5% agreed, 3.8% neutral and 1.9% disagreed that the management was keen on integration and use of new technology in their organization.
2. *Users undergo training*: strongly agreed 36.9%, agreed with 47.6%, neutral 8.7%, 1% disagreed and 3.8% strongly disagreed that users underwent training on new technological inventions.
3. *Leadership is keen on using new digital technologies to do business better, faster, and cheaper.* Strongly agreed and agreed each had 38.8%, neutral at 9.7% disagreed 2.9% and strongly disagreed at 9.7%.
4. *Management has allocated resources and finance for technological innovations:* 40.8% strongly agreed, agreed 39.8%, neutral 8.7%, strongly disagreed 9.7% and disagreed at 1%.

Inferential Statistics Results

The study first sought to establish if there was a variation between independent variables and dependent variable, the financial performance of microfinance institutions, as indicated in table 3 using Analysis of Variance (ANOVA).

Table 3: Analysis of variance (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	15.789	4	3.947	32.366	.000[b]
	Residual	11.952	98	.122		
	Total	27.742	102			

a. Dependent Variable: Financial Performance

Results of ANOVA

Table 3 revealed results as follows: F=32.366, the F critical calculated at degree of freedom (df) showed 4, 98) at a sig (p-value) of 000[b] ($\leq$ 0.05) which indicated that the overall regression was significant.

With a significant regression, the study further conducted a correlation and regression analysis between technological innovation and financial performance. Table 4 revealed their correlational matrix results:

Table 4: Correlational Matrix

		Technological Innovation
Financial Performance	N	103
	Pearson Correlation	.573**
	Sig. (2-tailed)	.000
	N	103

*** indicates that Correlation is significant at the 0.01 level (2-tailed).*

The results in Table 4 revealed that that a correlation exists between the dependent variable "financial performance" and technological innovations. The correlation matrix shows that there is a significant and positive relationship between financial performance and technological innovation as p (0.000) $\leq$ 0.05 and r (.573**). This demonstrates that technological innovation has a positive influence on financial performance.

Conclusion

This study found that technological innovation is significant in enhancing the financial performance of deposit taking microfinance institutions. Therefore, there is a likelihood of increased financial performance in DTMFI's if they can integrate technology.

Recommendations

DTMFI's need to use technology to streamline every core service - money management and movement, lending, investments, and savings. Specifically, the management should be keen on integration and use of new technology; train staff on new technology; adopt new digital technologies and allocate resources and finances for technological innovations.

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