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Innovation and Realization of Universal Health Care Coverage in Kenya: A Case of National Hospital Insurance Fund

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Abstract

Purpose: The National Hospital Insurance Fund (NHIF) plays a role of health financing which is a key pillar of universal health care coverage in Kenya. However, as of 2014, the Universal Health Care (UHC) index in Kenya was at [52%] compared to [55.0%] in 2019, which represent a mere improvement in access to health by [3%] in a span of 6 years. Thus, a lot has to be done in ensuring that everybody has access to affordable and quality health care services. Although innovation is an important construct, there is scanty of literature and evidence to link it with realization of universal health care coverage in the economy. Thus, the effect of innovation on realization of UHC Coverage by NHIF was explored. Specifically, process innovation and technological innovation in relation to realization of UHC by NHIF was determined. Diffusion of innovation theory and the technology acceptance model theory guided the inquiry.

Methodology: Explanatory descriptive survey design was embraced targeting [155] respondents. In total, [112] respondents were selected through stratified random technique. Information in primary mode was obtained through questionnaire that had semi-structured items. The questionnaire was pilot tested among [12] respondents selected away from the study sample. Processing of the gathered views was done descriptively and inferentially. Tables and figures were used in presenting the analyzed findings.

Findings: It was noted that process innovation and technological innovation all have significant influence on realization of Universal Health Care coverage by National Hospital Insurance Fund. The study concludes that innovation significantly predicts realization of universal health care.

Recommendations: The study recommends that policy makers at National Hospital Insurance Fund should regularly review the existing policies and amount of premiums contributed by members especially the self-employed people so that the same is affordable. Information and communication technology managers working at National Hospital Insurance Fund should invest in latest and modern state of the art technologies and replace the existing and obsolete ones.

Keywords: *Innovation, Process Innovation, Technological Innovation, Universal Health Care Coverage, National Hospital Insurance Fund*

1.0 INTRODUCTION

In Kenya, Universal Health Care Coverage (UHC) is among the Big 4 Agenda by the National government and it is guided by the Kenya Health Policy. Universal health care aims at ensuring that Kenya has access to quality, promotive, curative, preventive and rehabilitative health services without going through financial hardship. One of the objectives of the UHC is to expand the population under the universal health insurance coverage. Universal Health Care is grounded on the social pillar of Vision 2030. A number of challenges that Kenya is currently facing in regard to UHC realization include low opportunities for regular medical training, poor health infrastructures, governance issues with NHIF and low capitation (Okech & Lelegwe, 2016). In view of these challenges, the study recommended the need to embrace innovations by all health care players and stakeholders. Kenya is yet to establish and operationalize an official policy on UHC which ensure that targets and goals have been realized. There are some challenges in the health care sector in Kenya including mismanagement of funds, low number of facilities that are not well equipped, stock out of essential medicinal products and these are likely to limit realization of UHC (Obare, Brolan & Hill, 2014). The Kenya Medical Research Institute (KEMRI) conducted a study on progress made in realization of UCH in Kenya in the year 2019. In this study, UCH was operationalized into service coverage and financial risk protection.

In the increasingly competitive business environment, firms have to remain innovative so as to remain successful. Innovation does not only involve introduction of new products and services in the organization but also reforming the structures and systems in the firm (Gulshad, Muhammad & Abu-Bakar, 2018). The changing business environment has required firms to constantly adopt new technologies for survival. Technological innovation is the adoption of new or modified techniques to carry out processes in the organization (Gupta, Malhotra, Czinkota & Foroudi, 2016). Technological innovations seeks to ensure that the needs of customers are well met, new markets are opened up and positioning the products of the organization to increase the share (Nieves & Diaz-Meneses, 2016). The main concern of technological innovation is to apply ideas that are linked with applied sciences so as to bring changes to the entire process of production (Kowo, Akinbola & Akinrinola, 2019).

With process innovation, an organization implements new or significantly improved delivery or production methods. It involves significant change in softwares and equipment as well as techniques. An organization can implement process innovation so as to reduce cost per unit of delivery or production, to improve the quality standards deliver product that is significantly improved (Trantopoulos, von-Krogh, Wallin & Woerter, 2017). Process innovation enables the firm to implement new or improved delivery or production method. Process innovation focuses on changing the equipment as well as techniques that are required in the production process (Swarup, 2017). In most cases, organizations do implement process innovation to improve the level of quality or come up with products that are significantly improved (Rosenzweig, 2017).

In Kenya, national health insurance is provided and administered by the National Hospital Insurance Fund (NHIF) which was established in 1966 to provide health insurance to formal sector where the informal sector was added on the list in 1998. For all employees in the formal sector, members to NHIF are mandatory but this is voluntary for the informal employees. Individuals in the informal sector pay premiums at a flat rate of Kshs. 500 every month while for the salaried members; the premiums payable are graduated on a scale ranging from Kshs. 150-1700 every month. In order to boost the capacity of NHIF in attainment of UHC in Kenya, a number of innovations have been adopted in the past eight years (Orangi, Kairu, Ondera, Mbuthia, Koduah, Oyugi & Barasa, 2021).

For instance, technology has been adopted including online registration as well as customer self-service. Premiums can now be paid through platforms as mpesa and efforts are in place to include biometric technology the membership cards (NHIF, 2019). Besides technology, NHIF has also implemented a number of new products in past years including Linda Mama, Supa Cover services as well as EduAfya services. Linda Mama product is an innovative solution that ensures that pregnant women and the infants have access to quality health care. For Supa Cover product, the principal member and beneficiaries pay a monthly premium of Kshs. 500 hence it is affordable to most people. In 2018, EduAfya product was introduced at NHIF for health financing of public secondary students within the duration they are in school (Mbau, Kabia, Honda, Hanson & Barasa, 2020).

Statement of the Problem

Volatile business surrounding has forced firms to adopt innovation as a strategy in achievement of the goals (Christian, Caroline & Thuc, 2015). Innovation involve introduction of new products, processes, use of new technologies and modification of existing structures in the organization so as to achieve the formulated objectives in the firm (Ogunkoya & Hassan, 2019). Having been established in 1966, NHIF plays a role of health financing which is a key pillar of UHC in Kenya. However, as of 2014, the UHC index in Kenya was at 52% and as of 2019, this stood at 55% (UHC Global Monitoring Report, 2019) implying slight improvement. This means that a lot has to be done in ensuring that everybody has access to affordable and quality health care services. This therefore calls for the need of stakeholders in the health sector including the social insurance providers like NHIF to remain innovative.

Various studies have been conducted on innovation. For instance, Gharibeh (2019) studied strategic innovation and its influence on financial performance in Jordan and noted that innovation has direct and significant implication on monetary performance. Ogunkoya and Hassan (2019) did a study on innovation and its influence on entrepreneurial development in Nigeria and noted that innovation was found to have a direct influence on performance of the firm. Njihia et al. (2018) focused on innovation and its interaction with performance focusing on Kenyan banks and noted that innovation influences the ability of the firm to perform. Barasa et al. (2018) examined the reforms made by NHIF in realization of UHC and noted the use of new technologies, introduction of new packages and revision of monthly contribution of premiums as some of the reforms.

Some of the reviewed inquiries merely focused on financial performance and entrepreneurial development hence research gaps. Other studies concentrated on reforms and not innovations. There are other studies that focused on more than one firm unlike the present study that will adopt a case study methodology. Thus, the present study sought to determine the effect of innovation on realization of universal health care coverage by the NHIF in Kenya

Objectives of the Study

The following objectives guided the study:

a. To establish the effect of process innovation on realization of universal health care coverage by the NHIF in Kenya
b. To analyze the effect of technological innovation on realization of universal health care coverage by the NHIF in Kenya

2.0 LITERATURE REVIEW

Theoretical Review

Diffusion of innovation (DOI) theory and the technology acceptance model (TAM) theory guided the inquiry

Diffusion of Innovation Theory

This theory was formulated by Rogers (1962) and it provides an explanation of why, how and at what rate net knowledge and ideas get spread within a social system. According to Rogers (1995), diffusion describes a process where there is communication of a given form of innovation in the social system through an established channel over a given time. The theory indicate that the rate at which new innovations are disseminated in a social system is influenced by factors like trialability, complexity, compatibility, observability and relative advantage (Tiago, 2014). In essence, people are viewed as having varied degrees of willingness to take up innovations and the proportion of people adopting new innovations is seen to follow a normal distribution (Amit, 2017).

Relative advantage describes the degree to which an innovation is viewed to have superiority in relation to pioneers; compatility is extent which an innovation is well aligned with the experiences, values and the needs of those people who adopt it while complexity describes the extent which an innovation is viewed as being hard to use as understand (Rodgers, 2003). Oberservability is the degree to which the outcome arising from the new innovation is visible to different parties and trialability is the degree which an innovation is deemed to be knowledgeable before being adopted (Ringim & Dantsoho, 2017).

The DOI theory further assert that there exist three influencing forces that result into adoption of new technologies in the firm: different perceptions that people have in common with regard to an innovation, behavior and features of the adopters and the contextual factors (Seng & Ping, 2016). Through social systems, it is possible to relay information about innovations with the help of specific channels over a given time frame. Because of the differences among people, there exists differences in how innovations are adopted and the adoption process follows a normal distribution. Within this normal distribution, there are five key sections; the innovators, early adopters, early majority, late majority and the laggards (Nuryakin, 2018). The relevance of this theory to the study is that it will support the innovations that NHIF has adopted and how they have been conceived by the users and other adopters.

Technology Acceptance Theory

It was Davis (1986) who advanced this technology acceptance model theory. The theory offers an explanation and prediction on the way through which users adopt and use some technological innovations like the internet. The theory offers an explanation of the factors that inform people either to accept or reject some form technologies. The theory argues that the behavior of the users, their attitudes, their perceived usefulness and perceived ease of use will shape their decision to adopt and use given technologies. The theory goes further to determine the role played by external factors since they determine the intention of people to use technologies. In other words, technology mediates how the ease of use and usefulness determine adoption of technologies (Fernandes, Vasconcelos & Dobelin, 2018). Figure 1 is a summary of the TAM theory with its associated components and how they interact with each other in shaping the intentions to use technologies.

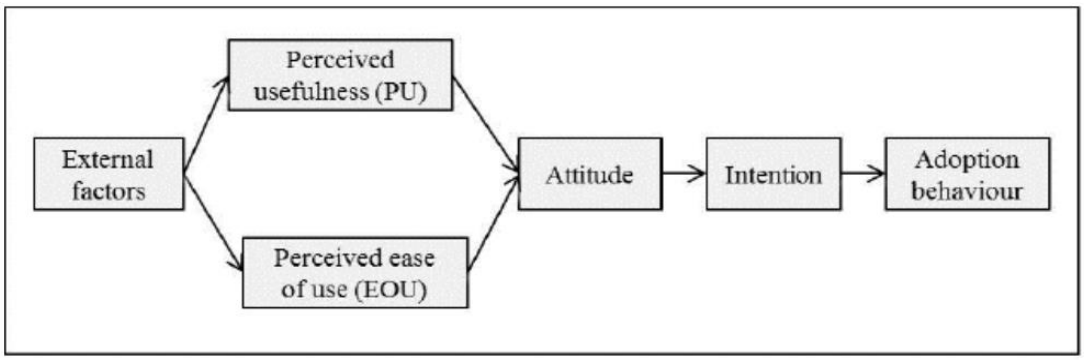

Figure 1: TAM

Source: Davis (1986)

From the above model, PU and PEOU are key factors that predict the attitudes, intentions and ultimate behavior of adoption of technology. This theory will be used to provide argument on the role played by technological innovation on realization of UHC.

Empirical Review

Process Innovation and Realization of Universal Health Care Coverage

In Sweden, Gedoc, Sahand, Mingyan (2013) conducted an analysis of process innovation and its link with the ability of the organization to perform. More specifically, the study focused on innovative means that have been used by municipal authorities in Sweden in management of the solid landfills. The design used was qualitative and it was shown that process innovation had positively enhanced customer and financial performance of the municipalities. With a focus archival and survey data from 15 countries covering 5,594 organizations, Mooi, Rudd and de-Jong (2020) analyzed process innovation and its role on firm performance. The study noted that process innovation positively enhances performance of the firm.

Hervas-Oliver, Ripoll and Boronat-Moll (2014) did a study in Spain to bring out the link between the strategy of process innovation and performance of the SMEs. A total of 2,412 firms were covered and the results showed that research and development (R&D) do not relate positively with improvement in processes in an organization. It was further noted that firms that do practice process innovation largely rely on acquiring externally generated knowledge so that the weak innovative capabilities are complemented. The resource based view provided anchorage to this study.

A study conducted in Turkey by Karabulut (2015) analyzed innovation types and their link with performance borrowing evidence from manufacturing entities. In total, 197 firms were covered by the study. It was shown that process innovation positively enhances performance of the firm. Kowo, Akinbola and Akinrinola (2019) conducted a study in Nigerian telecommunication sector to determine process innovation and implication on performance. The methodology adopted was survey and 114 respondents were targeted and issued with the study tools. It was shown that process innovation and performance are related with each other significantly. Omesa (2015) focused on innovation of the processes and its link with financial performance with focus on Kenya Power and Lightning Company (KPLC). The adopted design was descriptive. The collection and analysis of data was done descriptively and inferentially. The link between study variables was established as significant one.

Technological Innovation and Realization of Universal Health Care Coverage

Swarup (2017) used a case of South Africa, China, India, Russia and Brazil to evaluate technological innovations and the production of energy. The methodology that was adopted in this study was panel data as obtained from OECD and the period of consideration was 2005 all through to 2012. It was shown that an innovative environment helps in enhancing performance at the country level. Márquez-Ramos and Martínez-Zarzoso (2010) studied the role that technological innovation play as far as international trade is concerned. The proxies of technological innovation included human skills, the diffusion of old innovations, technology creation and diffusion of recent innovation. It emerged that technological innovation and export performance are positively linked with each other. These findings were echoed by McKnight, Maniam and Robertson (2019) in a study that analyzed technological innovation for survival of the business where a postive and significant link was established.

Rosenzweig (2017) focused on determining how diversification of technology and the level of knowledge at the country level would enhance technological innovations. The methodologies that were adopted include mixed modeling and generalized linear models and the analysis was confined on 7,118 patents that had been granted in communication and computer sector in the US. While controlling for cultural and economic attributes, it was shown that diversification of knowledge at the country level positively enhances technological innovations.

Yao, Huang and Li (2019) conducted a study in China with a focus on technology and non-technological innovations and their interaction with the brand equity. The study relied on evidence drawn from 124 listed entities covering the period from 2009 all through to 2014. It was shown that technological innovations and brand equity are positively related with each other and this link is significant. However, non-technical innovation was found to insignificantly predict brand equity. It was shown that product market development moderates the interaction between technically generated innovations and the brand equity of the firm.

Faridah and Yuserrie (2019) did an assessment of capabilities of technological innovation and their interaction with competitiveness and perform better using evidence from Malaysian automotive sector. Literature showed that technological innovation capabilities (TICs) help the firm to acquire core competences for competitive positioning. TICs were operationalized into R&D capability, HR capability, networking capability and manufacturing capability. The methodologies used in the study included the Partial Least Squares for analysis. It was shown that networking and R&D capabilities are able to enhance the competitive positioning and performance. On the other hand, manufacturing capability only enhances the ability of the firm to perform while HR capability only solely enhances competitive positioning of the firm.

A number of technological innovations have been adopted by NHIF in the effort to realize UHC in the country. These technological innovations include central connectivity, the use of biometric technology during identification, rolling out of online registration and customer care platforms, electronic fund transfer (EFT) and mobile payment of premiums. Wanjiru and Mokaya (2012) argue that the concept of central connectivity denotes integration of various network points from a centrally identified place. In this regard, it means that the whole branch network of NHIF is integrated together with all the accredited health care providers to enhance service delivery. The mobile and internet technologies have also enabled the members to be linked with the services offered by NHIF. The essence of this central connectivity is to enhance timeliness in service delivery, reduce costs incurred for communication as well as the costs of transportation and inconveniences. At the same time, the members of NHIF can

submit their monthly contributions (premiums) through the use of EFT via bank ort through Mpesa platforms at any time and the information is reflected in all branches of NHIF (WBGICl, 2014).

Conceptual Framework

Figure 2 is the conceptual framework that will be used to guide the study:

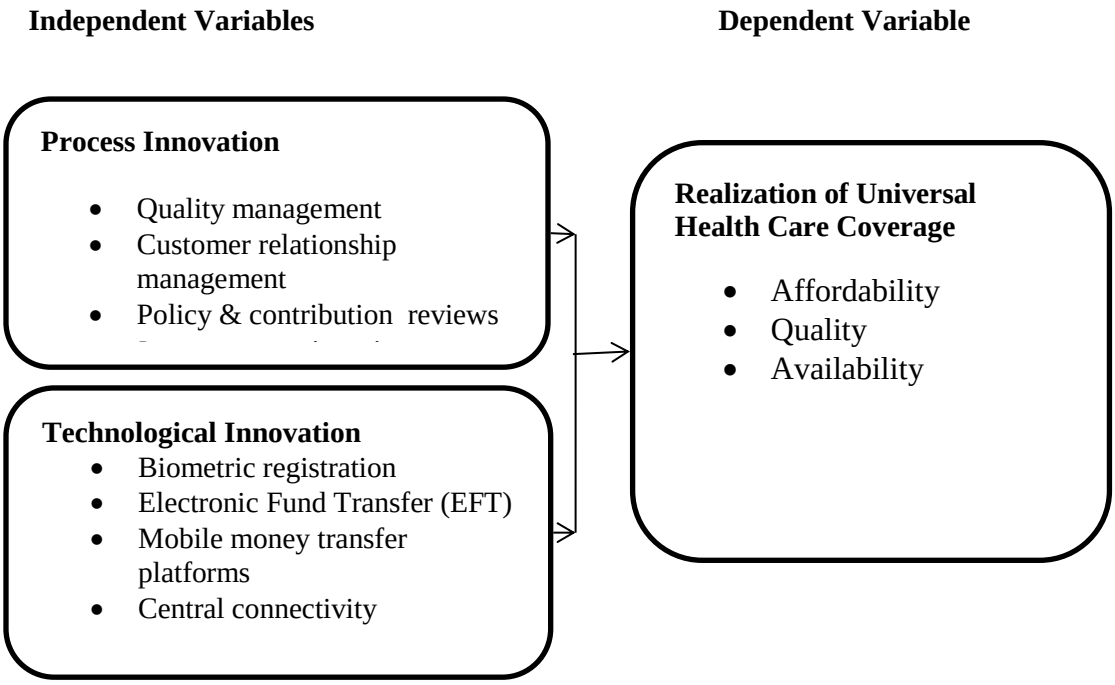

Figure 2: Conceptual Framework

3.0 METHODOLOGY

Research Design

Explanatory descriptive survey research design was embraced in this inquiry. Descriptive designs provide the actual account of things (Yin, 2017). It helped in determining the innovations at NHIF. The essence of the explanatory design was to test the hypotheses that guided the study as supported by regression analysis.

Target Population

The study targeted 155 top and middle managers at the NHIF-head office, Medical superintendents, WHO Representative and the Ministry of health representatives as shown in Table 1.

Table 1: Target Population

Department	Number of Staff	Sample Proportion (%)
Top and middle managers at the NHIF-head office	85	54.8
Medical superintendents	60	38.7
WHO Representative	5	3.2
Ministry of Health representatives	5	3.2
Total	**155**	**100.0**

Source: HR records at NHIF (2020)

Sample Size and Sampling Technique

Sampling Technique

Leveraging stratified random sampling, 112 participants were selected and included as shown in Table 2.

Table 2: Sampling Technique

Department	Number of Staff	Sample Proportion (%)	Sample size
Top and middle managers at the NHIF-head office	85	54.8	54.8%*112=61
Medical superintendents	60	38.7	38.7*112=43
WHO Representative	5	3.2	3.2*112=4
Ministry of Health representatives	5	3.2	3.2*112=4
Total	**155**	**100.0**	**112**

Sample Size

This was scientifically determined through the formulae by Yamane (1967) as under:

$$\mathbf{n = N / (1 + Ne^2)}$$

n = is the desired sample size

N = is the target population

e = is the acceptable margin of error estimated at 0.05 (at 95% confidence interval)

.

Therefore, sample size (n) = 155÷ (1+155 (0.0025))

= 155÷ (1+0.3875)

= 155÷1.3875

n= 112 respondents

Data Collection Instrument

Information was obtained in its primary form supported by the questionnaire. There was structuring of the study tool into several sections to address the study variables for ease of analysis. A five point Likert scale was adopted in design of the study tools.

Validity of the Research Instrument

The study tested for content, construct and face validity. With reference to content validity, the researcher shared the questionnaire with experts in the field of UHC and innovation who helped in reviewing the questionnaire and any suggestions raised were effected. With regard to construct validity, the supervisor reviewed the contents of the questionnaire in comparison to the constructs shown in the conceptual framework and necessary changes were effected after this review. With regard to face validity, the supervisor looked at the face of the questionnaire and subjectively established whether questionnaire measures innovation and UHC.

Reliability of the Research Instrument

According to Creswell and Creswell (2017), 1-10% of the sample size of the respondents can be selected and used for pilot testing. In this regard, the study selected 12 respondents from the NHIF-Mombasa branch being 10% of 112 for piloting. The outcomes from the pilot study were used to compute Cronbach Alpha Coefficient values whose interpretation will be at 0.7.

Data Analysis and Presentation

The analysis of the data started with cleaning through excels software after which it was exported to SPSS tool. In the SPSS, a summary of means and standard deviations were generated to describe the variables. Multiple regression analysis was adopted with the model as specified:

$$\mathbf{Y=\beta_0+ \beta_1X_1+ \beta_2X_2+\varepsilon}$$

β_0- constant

Where X_1 is process innovation

X_2 is technological innovation

ε is the error term

Y- Realization of Universal Health Care Coverage

4.0 FINDINGS

Response Rate

From the 112 questionnaires that were administered to respondents, 81 were completely filled by respondents and collected implying a 72.3% response rate.

Descriptive Statistics Analysis

The subsequent sections provide an analysis of the study variables guided by means and standard deviations.

Process Innovation

Table 3 is a breakdown of descriptive statistics on process innovation

Table 3: Process Innovation

Statements on process innovation	Mean	Std. Dev
New quality management practices have been adopted to enhance service delivery in this facility	3.74	.908
The facility has adopted new customer relationship management practices to increase population coverage	3.96	.732
Policy rules have been reviewed in this facility resulting into new rates that are affordable to members	3.80	.645
The facility has re-engineered its processes to improve on efficiency	3.81	.672
The facility has reviewed the monthly premium contributions to ensure that more people access health services	3.89	.746
Average	**3.84**	**.741**

The study established from Table 3 that new customer relationship management practices had been adopted to increase population coverage (M=3.96; SD=0.732) and that monthly premium contributions had been reviewed to ensure that more people accessed health services (M=3.89; SD=0.746). Thus, process innovation helped NHIF to enhance customer relationship and review monthly premiums depending on such factors as the prevailing economic conditions. These findings are consistent with the NHIF Strategic Plan (2014-2018) where it was shown that review of policy rules as a process innovation has resulted into new rates and products being introduced for instance, the outpatient covers.

It emerged from the analysis that the facility had re-engineered its processes to improve on efficiency (M=3.81; SD=0.672) and that policy rules had been reviewed resulting into new rates that were affordable to members (M=3.80; SD=0.645). It can then be inferred that process innovation at NHIF guided and drove business re-engineering as well as the review of rules and policies which improved efficiency and speed at which clients would access health services. This assertion agree with the NHIF Strategic Plan (2014-2018) where it was shown that review of policy rules as a process innovation has resulted into new rates and products being introduced for instance, the outpatient covers.

The further established that new quality management practices had been adopted to enhance service delivery (M=3.74; SD=0.908). Thus, process innovation had allowed NHIF to improve on its quality management processes and mechanisms which translated to an improvement in health service delivery to customers. This finding agree with the NHIF Strategic Plan (2014-2018) where it was indicated that there has been strategic changes in procedures and policy rules as an element of process innovation besides re-engineering of the Fund processes including to enhance service delivery, quality management practices, increasing accessibility, review of policies and the monthly contributions premiums) and maximization of the benefits.

Technological Innovation

Table 4 is a breakdown of descriptive statistics on technological innovation.

Table 4: Technological Innovation

Statements on Technological Innovation	Mean	Std. Dev
Finger prints scanning has been adopted in this organization during registration of members	3.65	.749
Iris scanning is used in this organization during registration of members	3.63	.825
Adoption of biometric systems have increased the speed which we register new members in this organization	3.79	.958
Biometric registration has been adopted to reduce medical fraud in this organization	4.16	.797
Electronic fund transfer (EFT) has been adopted as a means of paying premiums by members of this organization	3.59	.734
Registered members of this organization can now pay their premiums conveniently through Mpesa pay bill number over the mobile phones	4.29	.732
All our branches have been centrally connected with the head office to enhance level of efficiency in claims settlement	4.22	.741
Average	**3.90**	**.791**

Registered members could pay their premiums conveniently through Mpesa pay bill number over the mobile phones (M=4.29; SD=0.732) and that all branches had been centrally connected with the head office to enhance level of efficiency in claims settlement (M=4.22; SD=0.741). Thus, NHIF had put in place mechanisms for customers to pay their premiums through mobile phones besides having a greater degree of integration as aspects of technological innovation. The finding agree with WBGICl (2014) who said that the members of NHIF can submit their monthly contributions (premiums) through the use of EFT via bank ort through Mpesa platforms at any time and the information is reflected in all branches of NHIF.

It was shown that biometric registration had been adopted to reduce medical fraud (M=4.16; SD=0.797) and increase the speed of registering new members (M=3.79; SD=0.958). Therefore, biometric registration was an important technological innovation at NHIF that contributed towards an increase of registered members. The finding agrees with NHIF (2019) where it w was pointed out that efforts are in place to include biometric technology the membership cards. Similarly, Wanjiru and Mokaya (2012) noted that a number of technological innovations have been adopted by NHIF in the effort to realize UHC in the country including the use of biometric technology during identification.

The study revealed that finger print scanning had been adopted during registration of members (M=3.65; SD=0.749) and that iris scanning was also used during registration of members (M=3.63; SD=0.825). Thus, finger print and iris scanners as technological innovations simplified and enhanced the process at which NHIF registered new members. Wanjiru and Mokaya (2012) noted that a number of technological innovations have been adopted by NHIF in the effort to realize UHC in the country including the use of biometric technology during identification. It was further established that electronic fund transfer (EFT) had been adopted as a means of paying premiums (M=3.59; SD=0.734). EFT is particularly used by corporate clients of NHIF where employee's deducted premiums are remitted directly to the insurer. This allowed the full time employed staff to access health facilities from accredited hospitals. The finding agree with Wanjiru and Mokaya (2012) who said that a number of technological innovations have been adopted by NHIF in the effort to realize UHC in the country like the adoption of electronic fund transfer (EFT) and mobile payment of premiums.

Regression Analysis Results

Regression analysis was conducted to drawn informed inferences on innovation and its effect on realization of UHC in Kenya.

Table 5: Model Summary

Model	R	R-Square	Adjusted R-Square	Std. Error of the Estimate
1	.757	.573	.550	1.52515

From Table 5, the value of the coefficient of determination R^2 is given as 0.573; which imply that 57.3% variation in realization of UHC in Kenya is as a result of variation in innovation. Thus, there exists additional factors aside from innovation that have an effect on realization of UHC. Consider Table 6 for ANOVA evidence.

Table 6: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	236.773	2	118.387	52.235	.000
Residual	176.782	78	2.266		
Total	**413.556**	**80**			

The ANOVA results were that the model that this study adopted was significant ($p<0.05$). Table 7 covers beta coefficients and significance.

Table 7: Coefficients and Significance

	Unstandardized coefficients		Standardized coefficients		
	B	Std. Error	B	t	Sig
Constant	9.613	2.633		3.651	.000
Process innovation	.192	.081	.179	2.378	.020
Technological innovation	.679	.074	.744	9.183	.000

From Table 7, the following model is fitted:

$$\mathbf{Y=9.613+0.192\ X_1+0.679\ X_2+\xi}$$

Where X_1 is process innovation

X_2 is technological innovation

ξ is the error term

Y- Realization of Universal Health Care Coverage

The p-value on process innovation is given as $p=0.020<0.05$, implying that it was significant. Thus, the study deduces that process innovation significantly affects the realization of UHC in Kenya. This finding agrees with Gedoc, Sahand, Mingyan (2013) who noted that process innovation had positively enhanced customer and financial performance of the municipalities. Mooi, Rudd and de-Jong (2020) noted that process innovation positively enhances performance of the firm.

Taking p-values into consideration, the p-value of 0.000<0.05 mean that technological innovation had significance implication. Therefore, the study maintains that technological innovation is a significant predictor of the realization of UHC in Kenya. The finding concurs with Jinghua (2020) who noted that technological innovations significantly predict the prevention of environmental degradation. Yao, Huang and Li (2019) established that technological innovations and brand equity are positively related with each other and this link is significant. Faridah and Yuserrie (2019) showed that technological innovation capabilities (TICs) help the firm to acquire core competences for competitive positioning. Haabazoka (2019) argued that technological innovations positively enhance financial performance of an entity in terms of user friendliness, convenience and accessibility.

5.0 CONCLUSION AND RECOMMENDATIONS

Conclusion of the Study

Successful realization of UHC is strongly hinged on process innovation. Process innovation helped NHIF to enhance customer relationship and review monthly premiums depending on such factors as the prevailing economic conditions. Process innovation at NHIF guided and drove business re-engineering as well as the review of rules and policies which improved efficiency and speed at which clients would access health services. Process innovation had allowed NHIF to improve on its quality management processes and mechanisms which translated to an improvement in health service delivery to customers.

Technological innovation is a critical driver of realization of UHC. NHIF had put in place mechanisms for customers to pay their premiums through mobile phones besides having a greater degree of integration as aspects of technological innovation. Biometric registration was an important technological innovation at NHIF that contributed towards an increase of registered members. Finger print and iris scanners as technological innovations simplified and enhanced the process at which NHIF registered new members.

Recommendations of the Study

Process innovation was present at NHIF and it was found to have significant implication on realization of UHC. Thus, it is recommended that policy makers at NHIF should regularly review the existing policies and amount of premiums contributed by members especially the self-employed people so that the same is affordable.

It was pointed out that technological innovation was practiced at NHIF and it was significantly linked to realization of UHC. Thus, it is recommended that the information and communication technology managers working at NHIF should replace the existing and obsolete ones. This will enhance the level of efficiency in service delivery thus supporting the realization of UHC.

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