



# Analysis of Process Re-engineering on Organizational Performance of NHIF in Northern Region, Kenya

Guyo Galgalo Dida <sup>a++\*</sup> and Robert Obuba <sup>a</sup>

<sup>a</sup> Mount Kenya University, Kenya.

## **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

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## **ABSTRACT**

Companies across the world are turning to strategic innovation as a reaction to the growing volatility and complexity of the business environment they are facing. The primary goal of this research is to determine the impact of process reengineering on the organizational performance of the National Health Insurance Fund (NHIF) in chosen counties in Kenya's northern region. Knowledge-based theory served as the theoretical foundations for this investigation. For the purpose of collecting data, a descriptive survey research design was used, which included the utilization of both primary and secondary data sources. Primary data was collected via the use of structured questionnaires. The study's target group was made up of 64 NHIF workers who work in the chosen county offices, according to the researchers. It was necessary to conduct a census in order to determine the sample size of all 64 workers, and a random sampling method was utilized in order to ensure that each participant has an equal chance to participate in the research. The gathered data was examined with the help of SPSS in order to identify the connection between the research factors. Descriptive and inferential statistics were used in analyzing the data and a multiple regression model was applied to establish the relationship amongst the studied factors. The study established a

<sup>\*\*</sup> Masters of Business Administration;

<sup>\*</sup>Corresponding author: E-mail: [guyodida19@gmail.com](mailto:guyodida19@gmail.com);

moderate positive relationship between process re-engineering and organizational performance ( $p=0.001$ ). Consequently, in terms of recommendation, the government may consider implementing policies that enable the NHIF to develop and innovate its products concurrently protecting the interests of the members. The government should also provide marketing regulations and policies to ensure that the NHIF products are fully marketed to reach the entire population since it is the primary health insurance provider in Kenya.

*Keywords: Process reengineering; organizational performance; national insurance.*

## 1. INTRODUCTION

A healthy country is a prosperous one, and Kenya has already made significant steps toward achieving 'wealth' via provisions in the constitution and the Vision 2030 plan that address health-related issues. In the years following 2004, debates have increased over the best way to attain Universal Healthcare Coverage (UHC) in order to guarantee that all Kenyans have access to high-quality and inexpensive health care, regardless of whether such services are offered in the private or public sectors. Health insurance is a kind of health financing system that is intended to pool money in order to give all people, regardless of their socioeconomic position, with access to high-quality, inexpensive personal health care based on their health requirements. In many countries, like as the United States, it is mandated by legislation as part of a larger healthcare reform initiative. The government, the private sector, or a hybrid of the two may be responsible for its administration. The insurance's funding methods may differ depending on the program and the country in which it is offered. National or statutory health insurance in the United States of America (USA) does not always imply government-run or government-financed health care, but is instead created by national law in most cases [1]. The Beveridge and the Bismarck models of national health insurance are the two most often used models of national health insurance today. The model was named after William Beveridge, a strong social reformer who was instrumental for the establishment of the United Kingdom's National Health Service [2]. According to this system, health care is provided and paid for by the government via taxes, just as the police force and the public library are both supported by the federal government through taxation. Government-owned hospitals and clinics are common in this nation, but not all of them are. Some physicians are government employees, but there are also private doctors who take payment from the government for their services. Doctor's bills are never provided to people under

this kind of system. Because the government, as the only player, has complete control over what physicians may perform and how much they can charge, the systems tend to have low costs per capita [3].

National schemes have the benefit of having a pool or pools that are very big and representative of the whole country's population, which is advantageous. It is possible to contribute to a health care pool throughout the course of a person's lifetime in order to cover health-care expenses that are particularly expensive at specific periods of life, such as pregnancy and delivery, and notably in the last years of one's life. The amount paid into the pool is greater when earnings capacity is at its highest, in order to offset expenses spent during periods when earnings capacity is low or non-existent, as explained above. When compared to privately-run insurance plans, which may be offered in some countries and which tend to charge varying rates from year to year depending on health risks such as the insured's age, family history, previous illnesses, and height/weight ratios, this is a significant difference. Therefore, when someone is sick and/or has limited financial resources, they are more likely to pay a higher premium for their health insurance coverage. National health insurance systems do not take into account any of these factors whatsoever. These actions by insurance firms, particularly in private schemes in competitive insurance markets, have a tendency to go against the fundamental principles of insurance, which are group solidarity and mutual aid (Leathard, 2000).

Health insurance, according to the World Health Organization (WHO), is a potential method of attaining universal health coverage (World Health Organization; 2010). There are a number of poor and middle-income nations working on creating national or social health insurance programs, including the Philippines, Thailand, and Vietnam (SHI). Those who are insured by different types of health insurance have varied levels of impact on the individuals who are covered by those

plans. For example, whereas PHI is typically characterized as serving mostly the wealthy parts of a community, CBHI is often characterized as a health funding method that may be particularly beneficial to the poor. Countries considering the introduction of health insurance schemes into their health-care systems should be cognizant of the fact that the effect of these programs differs from one country to the next.

An act of parliament in 1966 created the National Health Insurance Fund (NHIF), which is a department under the Ministry of Health. Its mission is to provide health insurance solely and mandatorily for people employed in formal employment (Edna 2010). In 1972, an amendment was passed to enable people working in informal jobs to volunteer for the organization. The fund was converted into a state company in 1998 by an act of parliament, known as the National Health Insurance Fund Act No. 9 of 1998 [4]. The NHIF's mandate includes the registration of members, the receipt of fund contributions and payments, the disbursement of funds to declared hospitals, the establishment of criteria for hospital declaration and accreditation, the regulation of contributions payable to the fund, the regulation of benefits and other payments made out to the fund, the protection of the interests of fund contributors, and the provision of advice to the government on national policy in relation to national health insurance, among other things [5]. The fund fulfills its mission via two main agents, namely, employer payments to the fund on a monthly basis and declared hospitals that provide medical services on credit to NHIF members and subsequently collect reimbursements through hospital claims [6].

In order to carry out its mission, the NHIF's activities are oriented toward money pooling and collecting at the organization's headquarters for the objectives of equality and accessibility to all members. Cash is collected at branch offices and put into a central account. Fairness and predetermined budgets guide the allocation of contributions for claim payments and service center administration. Employers' contributions should be submitted through online banking, while members' contributions from the informal sector should be sent via m-pesa, in order to maximize efficiency and minimize waste. The fund has established an online banking option for the roughly 50,000 registered employers to assist cut wait times at NHIF office locations [6].

Concerning Individual membership; participation in the plan; the plan provides coverage for all individuals over the age of 18 and their dependents. This involves the facilitation of universal coverage via the establishment of a legislative framework that is consistent with the objectives of social health insurance programs. In addition to online registration and magnetic stripe cards, this fund is in the process of connecting with other government organizations and implementing automated updates. A new online registration system has been implemented by the fund, which allows for the registration of new members and their dependents, subject to the fulfillment of certain criteria, including the presenting of identity papers, and membership may be confirmed by SMS [5]. In addition to registration, members are provided with portable membership cards that allow them to access the fund's systems from any location in Kenya, including any area where the fund has declared health facilities. This technology improves the efficiency with which members are served while also allowing for the control of fraud [5]. The National Health Insurance Fund (NHIF) is presently in the process of upgrading its card system to incorporate biometric technology for easier identification, as well as the connection of the card system with a bio-data system. The fund is currently investigating the feasibility of integrating its systems with those of the national bureau of registration in order to provide members with automatic updates of their details at the time when birth and death certificates are issued. This will ensure that all births and deaths are updated at the time when such certificates are issued [6]. Since the establishment of the National Health Insurance Fund (NHIF), the incidence of fraudulent claims and rejected claims has been reduced significantly, and the fund's operational efficiency in processing claims has improved significantly, with the average length of wait time for claims processing having decreased to 4 days from 11 days in 2004 [7]. In addition, the National Health Insurance Fund (NHIF) collaborates with health-care providers via involvement in hospital quality boards, the formation of quality improvement teams in all certified institutions, and the use of empirical outcome assessment methods. In addition, the fund performs clinical and quality audits on a quarterly basis for the aim of assessing and monitoring hospitals in order to guarantee that they provide high-quality service to its members as well as the general Kenyan public [7]. The fund makes use of health management information systems, which are distributed across

a large network of certified health care providers. The fund's goal is to establish a standard for health data collection, with the first stage being the adoption of the International Disease Coding Systems (ICD), which is presently in the process of being adopted. This will make it easier to analyze illness patterns, design benefit packages, and compare the fund's performance to other nations in the future [8].

Claim processing times have been reduced from a month to 14-21 days thanks to investments in information and communications technology (ICT) to reach members and support the delivery of its mandate, such as the introduction of Electronic Funds Transfer (m-pesa) for contributions, Swipe Cards, Point of Sale POS systems, and other innovations. The discounts on its inpatient package have grown in line with the NHIF network's growing number of certified institutions. According to the National Hospital Insurance Fund, it (NHIF) is by far the biggest insurer in the nation, with about 645 health institutions on its network, accounting for 44,299 beds out of a total of 49,000 accessible beds countrywide [9]. Despite the NHIF's gains in hospital coverage and membership over the last decade, an estimated 82 percent of Kenyans lack access to any kind of health insurance. As a consequence, the article tries to evaluate and identify the variables that have contributed to the NHIF's improved but still sluggish growth throughout the last decade and beyond. As a consequence, the goal of this study was to find out how new approaches might help the National Hospital Insurance Fund enhance its performance. In light of this, the researcher thinks it is critical to look at the effect of new techniques on the performance of Kenya's national hospital insurance fund (NHIF) in the country's northern region.

### **1.1 Statement of the Problem**

Strategic innovation has been shown to be associated with better performance in studies (Walker, 2004). Strategic innovation improves a company's worldwide competitiveness, total productivity, and ability to maximize shareholder value. When it comes to innovation, there are many unknowns and uncertainties to contend with. Both incremental innovations, such as updated versions or expansions of existing goods and processes, as well as radical innovations, which are based on the creation or implementation of new concepts and novel technology, are examples of what is meant by

innovation (Dewar and Dutton, 1986). In the process of creating an innovation inside a business, there is a certain amount of uncertainty. Both market and technical uncertainty have an impact on an organization's attitude toward innovation as well as the activities that take place when the innovation is being implemented.

NHIF operates in a highly regulated environment that necessitates a certain level of consistency in the delivery of services to its members on the part of the organization. For survival and the enhancement of organizational performance, NHIF must have adaptation competencies in response to constant change, hyper competitiveness, changing demographics, and changing consumer requirements (Lilly & Juma, 2014).

NHIF coverage is low in Isiolo County outside of the formal employment sector, and as a result, many poor and vulnerable households are more likely to engage in risky behaviors such as self-medication, irrational use of over-the-counter antibiotics, or the use of unqualified medical practitioners such as herbalists to treat their ailments (traditional "doctors"). Furthermore, when illness and sickness strike uninsured families in Isiolo County, there is a widespread propensity for poor and vulnerable rural households to turn to fundraising or the sale of family goods, including restricted assets, in order to cover the expenses of health treatment. Because of the changing competitive environment, the large National fund has adopted innovative methods of conducting business that not only provide added value to clients, but also earn them a premium on their investments. Strategic innovation is done both for the sake of survival and for the sake of sustainability.

Firms in the Kenyan health insurance sector have seen their performance fluctuate, in part due to the instability that defines environmental variables in this industry, as has been highlighted before (Bett, Obura & Oginda, 2018).

In spite of the fact that it is the sole national health insurance in Kenya, the National Health Insurance Fund (NHIF) has not been exempted from the volatility of the insurance sector and the resulting problem of predictability of performance. In order to retain its dominant position in the Kenyan health insurance market, the National Health Insurance Fund (NHIF) must continue to innovate (Wanjiru 2014).

The organization has made substantial investments in information and communications technology (ICT) to reach its members and support the delivery of its mandate. This includes the introduction of electronic funds transfer (m-pesa) for contributions, Swipe Cards, and Point of Sale (POS) systems, which have shortened the time it takes to process a claim from a month to 14-21 days. The NHIF network's increasing number of accredited institutions has resulted in an increase in the amount of money that may be saved on its inpatient package. National Hospital Insurance Fund (NHIF) is the nation's largest insurer, with about 645 health facilities in its network accounting for 44,299 beds out of a total of 49,000 accessible beds throughout the country, according to the National Hospital Insurance Fund (NHIF) [10]. Despite the fact that the National Hospital Insurance Fund (NHIF) has expanded hospital coverage and membership over the past decade, an estimated 82 percent of Kenyans do not have access to any kind of health insurance. As a consequence, the article tries to evaluate and identify the variables that have contributed to the NHIF's improved but still sluggish growth throughout the last decade and beyond. The goal of this study was to look at the effect of new techniques on the National Hospital Insurance Fund's improved performance in Kenya's northern regions, namely in the counties of Embu, Tharaka Nithi, Meru, and Isiolo.

## **1.2 Objective of the Study**

To examine the effect of process Re-Engineering on organizational performance of NHIF in Northern region, Kenya.

## **2. LITERATURE REVIEW**

### **2.1 Theoretical Literature Review**

#### **2.1.1 Knowledge based theory**

Methods for managing intangible assets aim to promote knowledge transfer across three types of intangible assets in order to improve people's ability to operate both within and outside the business. External structure, internal structure, and individual competency are the three types of intangible assets that may be classified as such. The phrase "knowledge capital" refers to a mix of internal structure and human competency (Syed & Kaushar, 2010).

NHIF members, the public and private hospital system, employers, and NHIF fund recipients all

make up part of the NHIF fund's external structure, which may be thought of as a family of intangible networks. The worth of external connections for a company is defined by the company's capacity to manage customer issues, which may be unpredictable. Reputations and relationships may be positive or negative, and they can change through time as a result of people's actions (Alavi & Leidner, 2001). The internal structure of a business is made up of the following elements: Patents, model templates, computer systems, and other more or less explicit administrative tools and processes are examples of internal directed activities that have the overall effect of establishing internal networks and structures inside the business. These are the results of the workers' efforts and are property of the company in question. The NHIF system incorporates the skills of employees from throughout the fund's several divisions, including Human Resources (HR), Information Technology (IT), Management, and more. Some of the company's internal and external infrastructure will survive even if it's most vital personnel leave, providing a foundation for a fresh start (Sveiby & Lloyd, 2006).

#### **2.1.2 Empirical literature**

In accordance with the goals of the study, the empirical literature will be examined.

#### **2.1.3 Process re-engineering strategy**

In recent years, it has become clear that programs aimed at expanding access to financial support for medical treatment have a positive impact on the efficiency and effectiveness of the nation's health insurance system as a whole. According to statistics provided by the World Health Organization (WHO), between the years 1990 and 2000, health disparities between the wealthy and the poor in countries such as Thailand were reduced by almost fifty percent. Increased insurance coverage was at the forefront of these efforts, which can be linked to the policies that were put into place by the government, which are responsible for a big percentage of this. A wider range of people are now covered by health insurance thanks, in part, to initiatives offered by pro-poor health insurance programs. These initiatives include subsidized voluntary health insurance and government support. The total number of people participating in these programs has risen to 2.8 million, with 500,000 people participating in the schemes' informal iteration and 2.5 million people participating in their official iteration, respectively.

The growth of membership has been particularly remarkable among those working in the informal sector, with an increase in membership in 2010 when compared to 2005, which is when membership in the fund among those who were working informally reached slightly more than 200,000 people, according to the fund. Membership growth has been particularly remarkable among those working in the informal sector (NHIF, 2010). Another variable that has improved as a result of the increased number of members is the level of contributions made by members and their beneficiaries. Another variable that has improved as a result of the increased number of members is the payout ratio, which has improved as a result of the increased level of benefits paid out, which has increased from 32 percent in 2006 to 54 percent in 2010 [11].

Looking at the time it takes for claims to be handled inside the NHIF system, it is much less than the approach used by commercial insurers, which has usually taken 30 days. But as a consequence of structural modifications made to the current claims procedure via process re-engineering techniques, the current waiting period for uncontested claims to be processed by NHIF is 14 days, as compared to the previous average of 21 days. Indeed, between 2005 and 2010, the amount of money that may be refunded on inpatient packages increased steadily, owing to a rise in the number of recognized hospitals that were part of the National Hospital Insurance Fund (NHIF) network. At the time of writing, the fund had contracts with 645 Kenyan hospitals totaling 44,299 beds, which was less than the country's total available beds of 49,000 at the time. A broad variety of hospitals, from public to faith-based to private, are covered by the National Health Insurance Fund (NHIF), which is by far the largest healthcare insurer in the country [9].

The National Health Insurance Fund (NHIF) is designed with a pay-as-you-go premise and a fee-for-service kind of structure so as to assure the fund's continued financial viability in the long term. As a consequence of this, it is essential to balance income (collection) and expenditures in a responsible manner in order to guarantee the organization's continued financial viability over the course of time. The sustainability of the National Health Insurance Fund program in Kenya is based on a matching mechanism between claims and expenditures. This is not the situation in other countries, such as Germany,

Chile, and the Philippines, where payments are provided by both employers and the government. Membership contributions, which have allowed the fund to increase coverage at a rate greater than 10%, particularly in the informal sector Membership contributions, which have allowed the fund to increase coverage at a rate greater than 10%, particularly in the informal sector The availability of sufficient revenues, which is dependent on the ability to optimize membership contributions as well as a sustainable contribution rate The availability of sufficient revenues, which is dependent on the ability to optimize membership contributions as well as a sustainable contribution rate The availability of sufficient revenues, which is dependent on the ability to optimize membership contributions as It has been observed, however, that there are significant variations in activity levels between sectors, particularly within the informal sector. This is compounded by the fact that the informal sector receives 33% of payments while only providing 5% of total contributions, which is a significant disparity between the two [12].

As part of its long-term strategy for financial viability, the National Hospital Insurance Fund (NHIF) developed consistent reimbursement rates for in-patient treatment. This was done in order to maintain the same level of affordability for off-peak medical service provision. The amount of compensation might vary quite a bit depending on the patient's diagnosis as well as the kind of treatment that is necessary for them to be successful. In many instances, compensation for providers working under Contract A and Contract B is determined on a case-by-case basis or on a fee-for-service basis, depending on the specifics of the situation. Compensation for service providers under Contract C is determined on a per-diem basis, which is analogous to a per-diem rebate payment structure. The National Hospital Insurance Fund (NHIF) is responsible for reimbursing hospitals for the services that they provide while also paying individuals who receive such services. Healthcare providers send their claims directly to the NHIF. The vast majority of claims are settled and paid out within 14 calendar days of the day that the claim was first submitted. This procedure does not include any interaction with a human being, and it is designed to be open and accessible to the service providers who are involved [13].

The National Hospital Insurance Fund (NHIF) intends to utilize case-based reimbursement for

inpatient treatments to a larger degree than it has in the past. A consequence of recent Gazette Amendments, the National Health Insurance Fund (NHIF) will be extending the scope of its benefits package to include coverage for outpatient medical care. The main form of funding would be capitation payments to long-term care facilities and nursing homes. Over-servicing and supplier-induced demand are exacerbated by fee-for-service systems, which have been highlighted as a significant driver of rising health care prices (NHIF, 2008). Since the great majority of NHIF-reimbursed services are delivered by private facilities (as opposed to public institutions), this suggests a preference for private providers among paid workers (who make up the large majority of individuals covered by the NHIF) (NHIF, 2009).

Even though health centers and basic care units provide for the vast majority of services, secondary and tertiary care providers in Kenya account for over 70% of total health expenditures. When compared to the cost of supplies, equipment, and drugs, the cost of employing a healthcare workforce is quite high (accounting for about 50 percent of the budget). More than 48% of the overall expenditure goes for curative therapy at the Ministry of Health (MOH, 2007). Payments to health-care facilities are also made by the Ministry of Health (MOH),

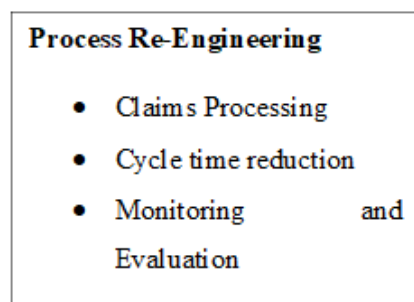
which provides funds to county- and national-level hospitals, as well as private hospitals. As indicated in the chart below, regional and county health institutions and dispensaries get line-item budget allocations, while national level hospitals receive global budget allocations. Compensation is provided to workers by the Ministry of Health in the form of salary payments. The Kenya Medical Suppliers Agency (KEMSA) also purchases drugs on a national level and distributes them to county and municipal level institutions throughout the country, as well as to international organizations. The slowness with which monies are distributed at the local level also creates uncertainty for providers, makes it difficult for them to plan ahead, and encourages county level administrators to wait for cash before purchasing services, resulting in an incentive to under-serve their clients (MOH, 2007).

## 2.2 Conceptual Framework

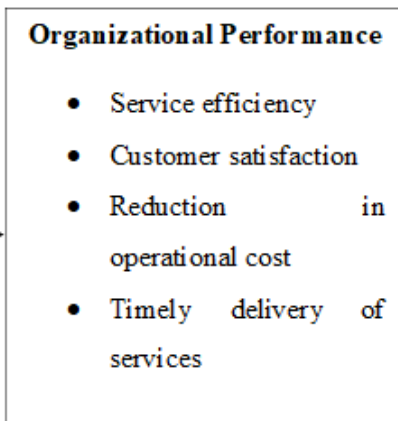
The conceptual framework depicts the relationship between the independent variables, which in this case are process engineering, benefit management, information and communications technology, and market innovation, and the dependent variable, which in this case is the organizational performance of the National Health Insurance Fund in four selected counties in Kenya's Northern region.

### Conceptual Framework

#### Independent variable



#### Dependent variable



**Fig. 1. Conceptual framework**

Source: Researcher (2023)

### 3. METHODOLOGY

#### 3.1 Research Design

A research design constitutes the blueprint for collecting, measuring, and analyzing data and an overall plan or structure of investigation concerned with obtaining answers to research questions (Cooper & Schindler, 2015). It indicates how a researcher analyses a research question, turns it into a project and plans to study the problem (Saunders, Lewis & Thornhill 2014). This study was based on descriptive survey research. The primary rationale for using a survey design for this research is that it allowed for the cross-referencing of answers from many respondents who have completed the survey instrument in the same manner. In order to investigate correlations between variables measured quantitatively and evaluated using a variety of statistical methods, the methodology is used [14].

#### 3.2 Data Analysis Techniques and Procedures

##### 3.2.1 Response rate

This study distributed a total of 64 questionnaires, out of which, 56 questionnaires were duly filled and returned. This translated to a response rate of 87.5% which was deemed appropriate for data analysis.

##### 3.2.2 Demographic information

This section contains the results of demographic characteristics of the respondents. These characteristics include gender of the respondents, age bracket, highest level of education and working experience.

##### 3.2.3 Descriptive statistics

In this section the study analyzed the descriptive results which showed how the respondents agreed and disagreed with various statements used to measure the study variables. The study used percentage, mean and standard deviation in descriptive analysis. Percentages showed the proportion of respondents that indicated various responses, mean showed the response with majority of the respondents while standard deviation showed the variation from the mean response.

The first objective of the study was to examine the effect of process Re-Engineering on organizational performance of NHIF in Northern region, Kenya. The respondents were asked to indicate their agreement level on the statements that relate to the effect of process re-engineering on organizational performance of the NHIF in Northern region, Kenya. The results are presented in Table 1.

**Table 1. Statements on process re-engineering**

Statements	N	Min	Max	Mean	Std. Dev
Our firm has invested in process re-engineering	56	1	5	3.97	0.97
Process re-engineering decreases cost of operations of our firm	56	1	5	3.70	0.91
Process re-engineering enhance quality of products and services of our firm	56	1	5	4.01	0.94
Process re-engineering enhance business processing reengineering of our firm	56	1	5	3.88	0.89
Process re-engineering enhance employee participation and commitment of our firm	56	1	5	3.95	0.91
Process re-engineering enhance product innovation of our firm	56	1	5	4.00	0.88
Process re-engineering enhance competitiveness of our firm	56	1	5	4.03	0.60
Process re-engineering increase the market share of our firm	56	1	5	4.13	0.98
Process re-engineering enhance customer loyalty of our firm	56	1	5	4.03	0.90
Valid N(Likewise)	56				

Source: Researcher (2023)



Findings in Table 1 indicate that respondents agreed that product innovations enhance cost savings of their firm as supported by a mean of 4.19 and a standard deviation of 0.91, indicating that the responses had low variance. The respondents agreed that product innovations attract diverse customers with varied needs of their firm as demonstrated by a mean of 4.12 and responses had less variance as shown by a standard deviation of 0.71. The respondents agreed that product innovation enhances the competitiveness of our firm as shown by a mean of 4.12 and a standard deviation of 0.57 indicating a low variance in the responses. The respondents also agreed that their firm has introduced new products in the insurance sector as demonstrated by a mean of 4.11 with a standard deviation of 0.89. In addition, the respondents agreed that product innovation provides the means for improving the quality of their firm and that product innovation provides the most obvious means for generating revenues for their firm as shown by a mean of 4.03 and 3.76 and standard deviations of 1.10 and 1.08 respectively. The standard deviations are above 1 depicting a high variance in the responses. Similar findings were established by Muigai [15] that product innovation attracts the customer and creates a competitive advantage for the firm and Omesa (2019) that process innovation improves the products and service quality of the firm and decreases the cost of operations of the firm.

## 4. RESULTS AND DISCUSSION

### 4.1 Inferential Analysis

This section presents the results for inferential statistics the study adopted to test the effect of independent variables on the dependent variables. The tests used include regression analysis to test the effect of independent variables on dependent variable [16-20].

### 4.2 Multivariate Regression Analysis

A multiple regression analysis was conducted to test the effects of strategic innovations on the organizational performance of the national hospital insurance Fund in selected counties in

Northern region, Kenya. The model summary is presented in Table 2.

The correlation coefficient (R) showed that there existed a moderate positive relationship between processes re-engineering on organizational performance as indicated by the correlation coefficient of 0.719. The R-squared also called the coefficient of determination is the percent of the variance in the dependent variable explained uniquely by the independent variables. The model had a coefficient of determination (R<sup>2</sup>) of 0.517 and which implied that 51.7% of the variations in organizational performance of the NHIF in the selected counties in Northern region, Kenya was explained by process re-engineering [21-24].

From the ANOVA, the study established that the regression model had a significance level of 0.002% which is an indication that the data was ideal for making a conclusion on the population parameters as the value of significance (p-value) was less than 5%. The calculated value was greater than the critical value (17.791 > 2.478) an indication that process re-engineering had a significant effect on organizational performance of NHIF in the selected counties in Northern region, Kenya [25-28]. The model was statistically significant at 5 percent level of significance and could be adopted to predict the effect of strategic innovations on organization performance.

The optimal model therefore became;

$$Y = 3.57 + 0.483X_1 + \epsilon$$

From the regression model obtained above, a unit change in process re-engineering while holding other factors constant would positively change organizational performance by a factor of 0.483. The p-value was 0.002, an indication that process re-engineering had a significant influence on organizational performance at a 5% significance level. The findings are Consistent with the study findings, Al Shorma et al. (2020) focused on the effect of process innovation on business performance in Malaysia and found a significant relationship between process innovation and business performance.

**Table 2. Model summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.719 <sup>a</sup>	.517	.476	.33195

a. Predictors: (Constant), process re-engineering

Source: Researcher (2023)

**Table 3. Analysis of variance (ANOVA)**

		ANOVA <sup>a</sup>				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.896	4	11.724	17.791	.002 <sup>b</sup>
	Residual	56.674	52	0.659		
	Total	103.57	56			

a. Dependent Variable: organizational performance

b. Predictors: (Constant), process re-engineering

Source: Researcher (2023)

**Table 4. Analysis of coefficients**

		Coefficients <sup>a</sup>				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.57	.759		4.7	.000
	Process re-engineering	.483	.104	.425	4.644	.002

a. Dependent Variable: organizational Performance

Source: Researcher (2023)

## 5. SUMMARY OF THE FINDINGS

The study sought to examine the effect of process Re-Engineering on organizational performance of NHIF in Northern region. The findings revealed that process re-engineering enhances the competitiveness of the firm, product innovations, business processing reengineering and enhances employee participation and commitment to the firm. From the findings, process re-engineering enhances the quality of products and services of the firm and enhances customer loyalty to the firm. In addition, the study found that the firm has invested in process re-engineering which decreases the cost of operations of the firm and increases the market share of the firm.

The study found a positive association between process re-engineering and organizational performance. There existed a moderate positive relationship between process re-engineering and organizational performance of the NHIF in Northern region Kenya. A unit change in process re-engineering while holding other factors constant would positively change organizational performance.

## 6. CONCLUSIONS

The study sought to examine the effect of process Re-Engineering on organizational

performance of NHIF in Northern region. The study found a moderate positive relationship between process re-engineering and organizational performance of the NHIF in Northern region Kenya. In conclusion, therefore process re-engineering has a positive and significant effect on the organizational performance of the NHIF in Northern region Kenya. Process re-engineering enhances competitiveness, product innovations, and business processing reengineering, quality of products and services as well as customer loyalty to the firm.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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