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Influence of Novelty Centered Business Model Innovations on the Performance of Manufacturing Firms in Kenya

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Abstract
Strategic management scholars agree that innovation in business models is essential for long-term survival in challenging commercial environments. The study was designed to determine the influence of novelty centered business model innovation on the Kenyan manufacturing companies' performance. The study was anchored on diffusion of innovation theory. The study adopted the descriptive research design and positivism philosophy that was aligned to the classical scientific method of research inquiry. Multi-stage sampling method was adopted to collect data from top management team in the manufacturing sector using a semi- structured questionnaire. The data was analysed using descriptive analysis techniques such as mean, percentages and standard deviation. The study established that novelty centered business model innovation positively and significantly influenced manufacturing firms' performance. The study recommends that manufacturers should endeavour to innovate their business models in order to achieve superior long-term performance. The study findings inform the extent to which novelty centered business model innovation predicts the performance of manufacturing firms.

Key words: novelty centered business model innovation, manufacturing, Performance

1.Introduction

Background of the Study

The most common contemporary challenge facing top managers in organizations is how to timely seize, sense and reconfigure their firm's value creation infrastructure so as to capture economic value in uncontested market spaces. Euchner (2016) observes that globalization, digitalization, technological convergence, big data revolution and the internet of things represent key landmark contemporary global trends that are significant industrial disruptions leading to shortening life cycles of new and established firms' business models. This calls for a firm's conscious choice of continuously scanning their internal and external environment with a view to informing the right time for avoiding a strategic drift in their business model that might expose them to sheer competitive vulnerabilities. Besides, intense competitive rivalry in the current global business environment continues to exert unpredictable business disruptions and external threats to commercial organizations that necessitate them to either reconfigure their firm's business models to emerging competitive landscape or ignore the market realities at their own peril (Spieth & Schneider, 2016).

Nevertheless, crafting novel business models is an enduring, long term-oriented process that involves irreversible decisions that carry significant risks and uncertainties compared to traditional innovation types such as product innovation process innovation or service innovation (Latifi & Bouwman, 2018). Furthermore, Speith and Schneider (2016) argue that BMI is harder to imitate than the traditional innovation types due to its valuability, inimitability, rarity, and non-substitutability characteristics. Therefore, this means that BMI is a fundamental catalyst that fuels and accelerates the attainment of superior long-term competitive advantage as well as the reaping of above industry economic rents despite the attendant, uncertainty complexity and risks.

Statement of the Problem

The Kenyan manufacturing sector plays a crucial role in driving economic growth and employment creation. The sector's contribution to Kenya's GDP was 9.2% in 2016(KAM,2018) and 7.6% in 2020 (KNBS,2021). The manufacturing sector growth rate decelerated from 4.4% in 2010 to 3.1 per cent in 2012, 3.6 per cent in 2016 and 4.2 per cent 2018 (KNBS 2012; KNBS 2014;KNBS 2017; KNBS 2019). Although Kenya's economic growth rate has been growing at an average of 5 per cent during the above stated period, the manufacturing sector has been growing year on year at an average 3% which is below the country's GDP growth rate (KIPPRA 2013; KIPPRA 2017; KNBS 2015; KNBS 2019).

The manufacturing sector continues to face its fair share of challenges including high production costs, counterfeits, contrabands, and high electricity costs that have contributed to closure of manufacturing plants in the past six years of companies such as Procter and Gamble, GlaxoSmithKline Kenya, Eveready East Africa, Colgate and Palmolive, Cadbury Kenya, Reckitt Benkiser as well as Johnson& Johnson and relocation of the firms' plants to low cost manufacturing hubs elsewhere in Africa (KAM 2018, KIPPRA, 2017). Despite the sector facing 12 per cent cost disadvantage compared to its African competitor sector countries, a commonly adopted option by firms to achieve superior long-term performance has been novelty centered business model innovation. Besides, firm specific differences in the execution of the variables of the BMI, have unambiguously put forth as potential explanations for the variations in firm performance in the manufacturing sector in Kenya (Were 2016; KAM, 2018; KAM, 2019).

A multiplicity extant studies have been published on the relationship between NCBMI and firm performance in the developed countries context (Foss & Saebi, 2017). Cucculelli and Bettinelli (2015) sought to evaluate the effect of NCBMI and performance in the Italian clothing SMEs industry. The empirical study offers insights on the role of NCBMI in the manufacturing sector and cannot be generalized to the Kenyan manufacturing sector. Similarly, Xu, Yang and Ren (2020) examined the relationship between Novelty Centered Business Model Innovation and Competitive Advantages of Sports Tourism in China. The findings of the study noted that that there is an inverted u-shaped relationship between novelty-centered business model innovation.

Although, several extant studies concerned with NCBMI – firm performance causal link exist, none of these studies focused on NCBMI and organizational performance within the study context of the Kenyan manufacturing sector. It is therefore necessary against this background that this study sought to fill the above stated knowledge gap and subsequently clarify the findings in the Kenyan manufacturing sector context.

Research Objective

(i) The main objective of the study was to determine the influence of novelty centered business model innovation on the performance of manufacturing firms in Kenya. The research study was guided by the following research hypothesis: H_o1: There is no significant relationship between novelty centered business model innovation and the performance of manufacturing firms in Kenya.

Theoretical Review

Diffusion of Innovation Theory (DIT)

The Diffusion of Innovation Theory (DIT) was developed by Everett Rogers in his 1962 diffusion of innovation book that has been published up to its fifth edition in 2003. The DIT examines how new ideas, products, services, technology, or other innovations are communicated and adopted in a specific social system (Shibeika & Harty, 2015). Rogers (2003) argues that diffusion is the process in which an innovation spreads across members of a social grouping through various communication channels over a given period.

The key proposition of DIT is that some innovations diffuse fast and widely, some are slowly adopted, others are adopted and later on abandoned and finally others are never adopted at all (Oldenburg & Glanz, 2008). Rogers (1995) argued that the spread of innovation follows an S- shaped curve formation within any given population. This suggests that the adoption of innovation takes place by following a normal bell-shaped distribution curve in a given population of interest.

This theory supports the NCBMI variable because it helps to explain how organizations can accelerate the adoption new offerings amongst targeted consumers so as to quickly achieve the critical mass required to achieve breakeven sales volumes and attendant market share gains. Thus, a co-ordinated, marketing

communications campaign for a new offering is critical in driving emotional appeal targeted to adopters in order to drive trial of offerings whilst overcoming perceived risk of trying new products.

Conceptual Framework

Conceptual framework refers to the diagrammatic representation of the linkages and relationships between key variables of interest in an empirical study that depicts the investigators view of solving a research problem in a scientific inquiry (Adom, Hussein & Agyem, 2018). According to Kumar (2015) a conceptual framework is an analytical research tool that depicts the relationship between exogenous variables and the endogenous variable in an empirical study. The study conceptual framework is illustrated below:

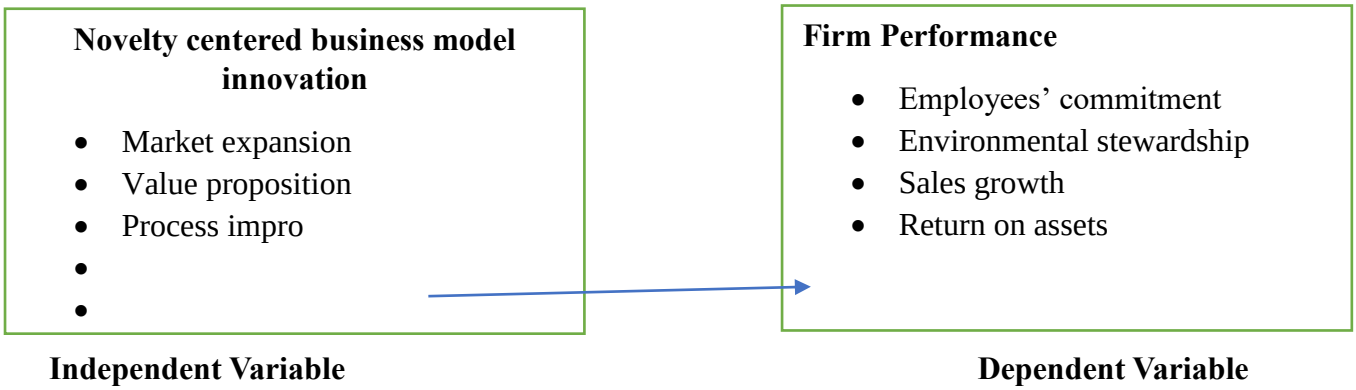

Figure 1: Conceptual framework

Novelty Centered Business Model Innovation

Novelty centered business model innovation (NCBMI) is defined an activity system that develops as a result of the adoption of new firm-specific business practices (Zott & Amit, 2010). Teece (2010) argues that NCMBI necessitates the introduction of inimitable and distinctive ways of undertaking economic transactions. Indeed, NCBMI needs only to be new to firm; it need not to be new to the world or industry.

Novelty-centered business model innovation focuses on introducing novel elements into the business model to create unique value propositions and differentiate from competitors. The significance of novelty centered business model is highly undersigned in fostering the competitiveness of business and ensuring effective productivity of the business in the dynamic market (Pati *et al*., 2018). Some of the key strategies that characterizes Novelty- Centered business model include value proposition, expansion into key markets and process improvement.

Empirical Review

Novelty Centered Business Model Innovation and Firm Performance

Cucculelli and Bettinelli (2015) sought to evaluate the effect of NCBMI and financial performance in the Italian clothing SMEs industry. The quantitative survey comprised of data collected from 376 top managers of SMEs using structured questionnaires through telephone interviews and financial data analysis for 328 clothing SMEs for the period between 2000 and 2010 retrieved from AIDA Bureau van Dijk database. The study found out that new to firm value propositions contribute successful commercialization of new offerings. The study concluded that NCBMI positively affects the firm's financial performance. The empirical study offers insights on the role of NCBMI in the clothing SMEs sector and cannot be generalized to the manufacturing sector. This leaves room for the conduct of the proposed study in the Kenyan manufacturing sector context.

A study by Shahwan & Zaman (2022) conducted an assessment on the novelty in a novel business model by investigating how strategic orientation temper firm performance. The study conducted an empirical review on relationship between the three strategic orientations and novel business model (BM). The findings of the study underscores that the validity of the model thereby providing theoretical support around complexity of BM.

Similarly, Xu, Yang and Ren (2020) examined the relationship between Novelty Centered Business Model Innovation and Competitive Advantages of Sports Tourism in China. The study explored the mechanism of the role of novelty-centered business model innovation on competitive advantage. The study conducted an empirical analysis of valid questionnaires. The findings of the study noted that that there is an inverted u-

shaped relationship between novelty-centered business model innovation and competitive advantage and the marketing dynamic capabilities play a positive regulating role between the two.

2.Materials And Methods

Research Design

A research design refers to a blueprint or detailed plan conceived by the investigator in order to collect and analyze data so as to gather answers to the research study problem (Bryman, 2016). Thus, the research design is essentially the systematic process of identifying the research problem and then undertaking a scientific enquiry so as to objectively generate solutions to the problem at hand. The research design purposes to not only identify the data collection instruments, data collection procedures and data analysis processes but also assure the highest degree of accuracy, reliability, validity, and objectivity of the scientific research inquiry (Kumar, 2015).

This research study adopted the descriptive research design. A descriptive research design is defined as a scientific research inquiry that attempts to obtain answers as to what, who, where, and when of a phenomenon under investigation (Blumberg, Cooper & Schindler, 2014). The adopted research design was appropriate because it enabled the investigator to gather answers as to the what of the research problem in an objective and neutral manner using detailed information concerning the study variables (Saunders, Lewis & Thornhill, 2019).

Target Population

The term population refers to the entire collection of units being studied in a scientific investigation (McBurney & White, 2010). According to Mugenda and Mugenda (2019) target population refers to entire set of units from which the research study intends to make generalizations. The target population of this study comprised of all manufacturing firms located in Nairobi County which is 586 firms as per the published data on manufacturers in Kenya (KAM, 2018). Nairobi county was found to be suitable for the study as it hosts approximately 80% of all the manufacturing firms in Kenya. The robustness and diversification of the industries in Nairobi county helped the researcher to spread the research to covering all the manufacturing sectors in the Country thus providing enhanced results. Manufacturing firms will form the unit of analysis for the study. According to Kothari and Garg (2019) unit of analysis is the entity that a researcher will make conclusions.

The study respondents were head of sales or equivalent role holders in manufacturing firms in Kenya in tandem with Hambrick, Humphrey & Gupta (2015) top management team definition. Thus, the head of sales in Kenyan manufacturing firms represented the unit of observation in the study. The top managers were targeted as key informants due to their inherent attributes of being responsible for crafting and implementing business model innovation decisions.

Sampling Frame

Sampling frame refers to the entire list of all entities in study population from which an accurate, valid, reliable, and representative sample is drawn (Zikmund, Babin, Carr & Griffin, 2013). For the purpose of this study, the sampling frame consisted of 586 Nairobi county-based manufacturing firms as registered in KAM membership directory as at end of 2021 in Kenya.

Sample Size and Sampling Technique

Sample size is defined as the total number of elements in a population of interest to an investigator that is precisely and objectively chosen so as to represent the characteristics of the population (Babbie, 2016). Furthermore, they observe that an optimum sample exhibits and meets the characteristics and requirements of reliability, accuracy, precision, efficiency, representativeness, has acceptable confidence levels and flexibility. The selected sample needs to be systematic and selected in such a way that it is representative of the attributes of the population of interest. This study adopted multi-stage sampling technique.

Roscoe (1975) suggested that empirical studies sample size rule of thumb is to comprise of elements greater than thirty (30) and less than five hundred (500). This study adopted Cochran (1963) sample size determination formula.

The Cochran (1963) sample size determination formula is detailed as below:

$$n = \frac{Z^2 pq}{e^2}$$

Where:

n = sample size

Z = Confidence level at 95% (take critical value of 1.96 at 5% significance level)

p = estimated distribution of attributes in the population of interest (take 90%)

q = 1- p (proportion of target population estimated to lack key attributes being measured)

e = margin of error (take 0.05)

Thus, the sample size for this study is calculated as below:

$$n = \frac{1.96^2 \times 0.9(1-0.9)}{0.05^2}$$

$$n = \frac{3.8416 \times 0.09}{0.0025} = \frac{0.345744}{0.0025}$$

$$n = 138.30$$

$$n \cong 138$$

Therefore, this study targeted 138 head of sales department officers in Nairobi County-based manufacturing firms. The distribution of the sample adopted a proportionate stratified distribution ton cover all manufacturing sectors proportionately.

Table 1: Sample Size

Sector (Strata)	**Target population**	**membership contribution**	**Sample**
Building, mining and construction	25	4%	5
Chemical and allied	61	9%	14
Energy, electricals and electronics	36	6%	8
Food and beverages	156	23%	35
Leather and footwear	8	1%	2
Metal and allied	63	9%	14
Motor vehicle assemblers and accessories	38	6%	8
Paper and board	53	8%	12
Pharmaceutical and equipment	20	3%	4
Plastic and rubber	62	9%	14
Textile and apparels	44	7%	10
Timber, wood and furniture	20	3%	4
Total	**586**	**100%**	**138**

Source: KAM Directory, 2021

Data Collection Instruments

Primary data was collected using a semi -structured questionnaire in order to gather facts for revealing answers to the research problem from targeted respondents. Secondary data was reviewed from Kenyan manufacturing firms' published annual reports as well as manufacturing sector published reports so as to allow for triangulation of collected primary data.

Pilot Study

A pilot study is a small-scale research study undertaken to pretest the questionnaire in order to establish potential flaws on the design, ordering and instrumentation of the data collection instruments, using target sample respondents before undertaking a full-fledged large- scale study (Fraser, Fahlman, Arscott, 2018). Extant literature on pilot study sample size of empirical studies concur that the mini study should involve at least ten per cent of respondents (Connelly, 2008; Treece & Treece, 1986). A pilot study of 20 study respondents was undertaken in order to pretest the questionnaire. The goal of pilot testing is to enhance data collection instrument reliability and validity, quality assurance as well as provide insight on the planned data analysis techniques effectiveness as well as spotlight the financial and human resource requirements (Doody & Doody, 2015).

Data Analysis and Presentation

Data analysis is defined as a systematic process of editing, cleansing, coding and entering raw data in a computer system in order to utilize, embedded software system analytical techniques so as to summarize the data in order to facilitate data interpretation in relation to research problem, objectives, objectives and theory or theories guiding the study (Zikmund *et al.*, 2013). Data analysis was undertaken using a multiplicity of different methods. The first method was to undertake diagnostics tests. Diagnostic tests consisting of linearity tests, normality tests and multicollinearity tests will be utilized to detect and correct any potential data anomalies that might be inconsistent with the fundamental CLRM assumptions.

Secondly, descriptive statistical analysis of collected data using statistical package for social sciences was conducted in order guide in making statistical decisions. Thirdly, factor analysis technique was used in order to transform any possible set of correlated variables into observations comprising of linearly non correlated explanatory variables (Kothari & Garg, 2019). Factor analysis was undertaken using SPSS version 23. Another technique undertaken was correlation analysis that aided the study in quantifying the relationships among the variables of interest.

The study hypothesis was tested using the analysis of variance (ANOVA) F-test statistic in order to determine the goodness of fit of the model. Inferential statistics derived from multiple linear regression (MLR) analysis was utilized to predict the regressand through execution of rigorous and robust tests of statistical significance as well as ANOVA from the data collected using SPSS version 23. The MLR analysis was justified for use in this study since it is suitable for forecasting and predicting study model parameters, helps in explaining the impact of changes in predict variables on the outcome variables and it aids in estimating the relationship between the respective regressors and the regressand in a model (Jeon, 2015). The use of SPSS software is justified on the fact that it is the most robust, versatile and easy to use statistical software that is commonly adopted by social scientists in undertaking complex statistical analysis (Kothari & Garg, 2019).

3. Results And Discussion

Response Rate

During the fieldwork, a total of 138 questionnaires were distributed, but only 130 questionnaires were returned having been dully filled. This translated to 94.2% response rate. The high response rate was achieved through regular follow ups with the participants over a four-week period and use of research assistants in the drop and pick questionnaire field distribution method. A response rate of 70% and above is regarded excellent according to Mugenda and Mugenda (2019). Further, Baruch and Holton (2008) observed that the average survey response rates from top organization managers was 36% with a standard deviation of 19%. Hence, the study response rate was considered as appropriate for data analysis.

Table 2: Response Rate

Questionnaires	**Frequency**	**Percent**
Responded	130	94.2%
Un-responded	8	5.8%
Total	**138**	**100.0%**

Novelty Centered Business Innovation and performance of Manufacturing firms

The objective of the study was to ascertain how Kenyan manufacturing firms' performance was impacted by novelty centered business model innovation. The study respondents were asked to rate their agreement with statements regarding to the influence of NCBMI on the performance of manufacturing firms in Kenya. The respondents' opinions were captured using a five-point Likert scale where: 1 = Very little extent, 2 = Little extent, 3 = Moderate extent, 4 = Large extent and 5 = Very large extent. The descriptive results are presented in percentages, mean and standard deviation in the table 3.

Table 3: Novelty Centered Business Innovation

Statements	**Very Little extent**	**Little extent**	**Moderate extent**	**Large extent**	**Very Large extent**	**Mean**	**Std. Dev**

	(%)	(%)	(%)	(%)	(%)		
Our firm regularly enters new markets.	16.5	5	9.2	36.8	32.5	3.72	1.40
We continuously expand into untapped market segments	2	3.2	32.2	39	23.6	3.72	1.29
We have entered many new geographical markets	2	6.1	20.7	53.4	17.8	4.01	1.16
We are preferred by customers due to the innovativeness of our products	2.4	7.2	3	65.6	21.9	3.60	1.09
The products we offer are different from those of our competitors	1.7	5.2	12.3	61.4	20.5	3.59	0.87
Our firm regularly relies on trade secrets	0.7	2.2	30.3	50.9	17	4.02	0.92
We are recognized as pioneers in the markets we operate	1.8	5.4	20	55.4	18.5	3.75	1.00
Our firm regularly brings together new business partners	4.7	14.2	10.3	53.9	18	3.81	0.98
Our firm allows stakeholders to access a variety of participants	1	2.9	27.3	52.4	17.5	4.02	0.77
The rich ness of the linkages between participants is novel	4.3	12.8	1	61.5	20.5	3.95	0.87
Our firm has continuously introduced changes in the way of doing business	0.2	0.7	34.3	49.4	16.5	4.03	0.96
Our firm regularly adopts new ideas and methods of conducting business	8.1	24.2	6.9	46.4	15.5	4.04	0.69
Our firm adopts new process, routines and norms to conduct business	1.2	3.6	32.4	47.9	16	4.12	0.90
There are important aspects of our firm's business model that makes it novel.	0.4	1.1	26.3	54.9	18.3	3.92	0.92
Average percentages	**3.5**	**6.2**	**19.8**	**51.7**	**17.2**	**3.87**	**0.99**

Table 3 shows the results of the analysis. The study findings illustrated that respondents agreed (Mean = 3.72; Standard deviation = 1.40) with the statement that our firm regularly enters new markets. The respondents also agreed (Mean = 3.72; Standard deviation = 1.29) that their firm continuously expanded into untapped market segments. Besides, the findings indicated (Mean = 4.01; Standard deviation = 1.16) that manufacturing firms entered many new geographical markets. The study findings based on a five - point scale revealed that the average mean was 3.81. This implies that most respondents agreed to the statements, however the answers were varied as depicted by the standard deviation of 1.28. The findings suggest the existence of market expansion practices (i.e. a key characteristic of NCBMI) among Kenyan manufacturers.

The respondents indicated (Mean 3.78; Standard deviation = 0.98) that their firm regularly shaped the needs of their customers. The participants further agreed (Mean = 3.60; Standard deviation = 1.09) that their firm was preferred by customers due to the innovativeness of their products. The study found out (Mean = 3.59; Standard deviation = 0.87) that the products offered by manufacturing firms were different from those of their competitors. Participants further agreed (Mean = 4.02; Standard deviation = 0.92) that their firm regularly relied on trade secrets. In addition, respondents agreed (Mean = 3.75; Standard deviation = 1.00) that their firm is recognized as pioneers in the markets they operate. The study findings based on a five - point scale revealed that the average mean was 3.78. This implies that most respondents agreed to the statements, however the answers were varied as depicted by the standard deviation of 0.972. The findings suggest the existence of value proposition practices (i.e. a key characteristic of NCBMI) among Kenyan manufacturers. The findings indicated that participants were in agreement (Mean = 3.81; Standard deviation = 0.98) with the statement that our firm regularly brings together new business partners. Respondents also agreed (Mean = 4.02; Standard deviation = 0.77) that their firm allows stakeholders to access a variety of participants. Besides, the study revealed (Mean = 3.95; Standard deviation = 0.87) that the richness of the linkages between participants is novel.

The findings established (Mean = 4.03; Standard deviation = 0.96) that manufacturing firms continuously introduced changes in their way of doing business. The respondents agreed (Mean = 4.04; Standard deviation = 0.69) that manufacturing firms regularly adopted new ideas and methods of conducting business. The study findings indicated (Mean = 4.12; Standard deviation = 0.90) that manufacturing firms adopted new processes, routines and norms to conduct business. The study findings based on a five - point scale revealed that the average mean was 3.98. This implies that most respondents agreed to the statements, however the answers were varied as depicted by the standard deviation of 0.870. The findings suggest the existence of process improvement practices (i.e. a key characteristic of NCBMI) among Kenyan manufacturers.

Finally, respondents concerned (Mean = 3.92; Standard deviation = 0.92) that there were important aspects of their firm's business model that made it novel. In summary, majority of respondents agreed (Mean = 3.87; Standard deviation = 0.99) with statements pertaining to the influence of novelty centered business model innovation on the performance of manufacturing firms in Kenya. The high mean recorded from the study findings attest that NCBMI influences the performance of Kenyan manufacturing firms. This means that implementing NCBMI practices will lead to improvement in organizational performance. Based on the study findings, the results indicate that NCBMI in Kenyan manufacturing firms was to a large extent manifested through market expansion, value proposition and process improvement. Therefore, the results affirm the existence of NCBMI practices amongst Kenyan manufacturing firms.

The study results attest that NCBMI has substantial impact on the performance of Kenyan manufacturing firms. These findings were consistent with the findings of Cucculelli and Bettinelli (2015) who found that NCBMI improves the firm's performance.These findings were also consistent with those of Xu, Yang, and Ren (2020), who discovered an inverted u-shaped link between novelty-centered business model innovation and competitive advantage, with marketing dynamic capacities playing a positive moderating role in the two.

Univariate Regression Analysis

Novelty Centered Business Model Innovation and Performance of Manufacturing Firms

The study sought to test the hypothesis on whether or not there was a statistically significant relationship between novelty centered BMI and the performance of manufacturing firms in Kenya. The null hypothesis of the study was stated as follows: there is no significant influence of novelty centered BMI on the performance of manufacturing firms in Kenya. The regression model summary is shown in **Table 4.**

Table 4: Model Summary for Novelty Centered Business Innovation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.665[a]	.443	.438	.49238

The study findings revealed a strong, positive and significant relationship between novelty centered BMI and the performance of Kenyan manufacturing firms (R = 0.665). The study findings coefficient of determination indicates that 44.3% of variation in the manufacturing firm's performance was explained by a unit change in NCBMI. The results imply that NCBMI predicts 44.3% of variation in firm performance of the Kenyan manufacturing firms and the remaining 55.7% of variations in firm performance of Kenyan manufacturing firms is attributable to other external factors outside this model. Moreover, the study undertook analysis of variance (ANOVA) test to determine whether or not the regression model was suitable for predicting Kenyan manufacturing firms' performance. The ANOVA test results are presented in **table 5.**

Table 5: ANOVA for Novelty Centered Business Innovation

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.656	1	24.656	101.701	.000[b]
	Residual	31.032	128	.242		
	Total	55.687	129			
a. Dependent Variable: Firm Performance						
b. Predictors: (Constant), Novelty centered business model innovation						

The ANOVA test results in **table 5** indicates that the F-statistic value are one 1,128 degrees of freedom and 0.05 significant level was 101.701. The results imply that the model has a high degree of goodness of fit and Novelty centered BMI is a good predictor of the Kenyan manufacturing firms' performance. Therefore, the study concluded that the model was suitable for predicting firm performance in the Kenyan manufacturing sector. The study also sought to establish if the regressed relationship between novelty centered BMI and the Kenyan manufacturing firms' performance was significant by conducting a t-test on the coefficient of NCBMI. The regression coefficients of the model are presented in table **6.**

Table 6: Coefficients for Novelty Centered Business Innovation

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.775	.233		7.620	.000
	Novelty centered business model innovation	.52	.052	.665	10.085	.000
a. Dependent Variable: Firm Performance						

The study results in table **6** show that the constant had unstandardized beta coefficient of 1.775. This implies that holding all other factors constant and NCBMI at zero, firm performance in the Kenyan manufacturing sector would be equal to 1.775 units. The study findings further revealed that the unstandardized beta coefficients for NCBMI was 0.52. This implies that a unit change in NCBMI would lead to an increase in the performance of Kenyan manufacturing firms by 0.52 units. The P value for the model was $0.000 < 0.05$. This suggests that the relationship between novelty centered BMI and the performance of Kenyan manufacturing firms was statistically significant. Therefore, the alternate hypothesis that states that there is significant relationship between novelty centered BMI and the performance of manufacturing firms in Kenya is supported. In summary, the study concludes that novelty centered BMI, positively and significantly influences firm performance of Kenyan manufacturing firms. The regression model equation for the results presented in **table 6** is summarized as:

$Y = 1.775 + 0.52\ NCBMI + \varepsilon$

Where:

Y = firm performance
NCBMI = Novelty centered business model innovation
ε = Stochastic disturbance term
The study findings concur with the results of this hypothesis test are consistent with extant studies that support the existence of significant and positive relationship between NCBMI and firm performance. Novelty-centered business models for innovation on the power supply side can offer the strongest and clearest guidance on strategic policies and concentrate on information sourcing using their comprehensive connections for seeking, raising and solving the problems associated with internalized and externalized issues (Zhao, *et.al*., 2021).

4.Conclusion Of The Study

The study sought to generally determine the influence of novelty centered business model innovation on the performance of manufacturing firms in Kenya. The null hypothesis tested was that there was no significant relationship between novelty centered business model innovation and the performance of manufacturing firms in Kenya. The descriptive statistics results indicated that on aggregate, respondents agreed that novelty centered business model innovation influenced the performance of Kenyan manufacturing firms. The study correlation analysis results indicated that there was a strong, positive and significant relationship between novelty centered BMI and the performance of Kenyan manufacturing firms. The simple linear regression results revealed that novelty centered business model innovation had a positive and statistically significant relationship on the performance of Kenyan manufacturing firms. the study concludes that novelty centered BMI has a positive and significant influence on the performance of manufacturing firms in Kenya.

Recommendations of The Study

According to the study findings, discussions and conclusions, further research is recommended in order to advance knowledge on the contribution of novelty centered business model innovation on firm performance. Management of manufacturing firms should seek to pursue value creation and new geographical markets' expansion in order to achieve sustainable business performance. The study recommends that the Kenyan government policy makers need to foster the implementation of novelty centered business model innovation practices among manufacturers in order to accelerate their contribution to employment creation and GDP growth to double digit levels.

References

1. Adom, D., Hussein, E.K. & Agyem, J.A. (2018). Theoretical and conceptual framework: mandatory ingredients of a quality research. *International Journal of Scientific Research, 7*(1), 438-441.
2. Babbie, E. (2016) *The Practice of Social Research* (14th ed.). Boston, Massachusetts: Cengage Learning.
3. Cochran, W. G. (1963). *Sampling Techniques* (2nd ed). New York: John Wiley and Sons Inc.
4. Connelly, L. M. (2008). Pilot Studies. *Medsurg Nursing, 17*(6), 411-413
5. Cucculelli, M., & Bettinelli, C. (2015). Business models, intangibles and firm performance: evidence on corporate entrepreneurship from Italian manufacturing SMEs. *Small Business Economics, 45*, 329-350.
6. Doody, O., & Doody, C. M. (2015). Conducting a pilot study: Case study of a novice researcher. *British journal of nursing, 24*(21), 1074-1078.
7. Euchner, J. (2016). Business model innovation. *Research-Technology Management, 59*(3), 10-11.
8. Foss, N. J., & Saebi, T. (2017). Business models and business model innovation: Between wicked and paradigmatic problems. *Long range planning, 51*(1), 9-21.
9. Fraser, U., Fahlman, D. W., Arscott, J. & Guillot, I. (2018). Pilot testing for feasibility in a study of student retention and attrition in online undergraduate programs. *International Review of Research in Open and Distributed Learning, 19*(1), 260-278.
10. Gachanja, I. S., Ng'ang'a, S. I. & Kiganane, L. N. (2020). Influence of organizational learning on innovation output in manufacturing firms in Kenya. *International journal of Innovation Studies, 4*(1), 16-26. https://doi.org/10.1016/ijis.2020.02.001

11. Hambrick, D. C., Humphrey, S. E., & Gupta, A. (2015). Structural interdependence within top management teams: A key moderator of upper echelons predictions. *Strategic Management Journal*, *36*(3), 449-461.

12. Kenya Association of Manufacturers. (2018). *Manufacturing Priority Agenda: Sparking Kenya's Industrial Transformation for Job Creation.* Retrieved from: https://kam.co.ke/kam/wp-content/uploads/2018/02/2018-Manufacturing-Priority-Agenda.pdf.
13. Kenya Association of Manufacturers. (2019). *Manufacturing Priority Agenda 2019.* Retrieved from: https://kam.co.ke/kam/wp-content/uploads/2019/02/KAM-Priority-Agenda-2019.pdf
14. Kenya Association of Manufacturers (2021). *Impact of Covid-19 on the manufacturing sector: one year on.* Retrieved from: https://kam.co.ke/wp-content/uploads/2021/07/Impact-of-COVID-19-on-manufacturing-sector-in-Kenya-Final.pdf
15. Kenya Association of Manufacturers. (2021). *Kenya Manufacturers and Exporters Directory 2020.* Nairobi: Adafric Communications Limited.
16. Kenya Institute for Public Policy Research and Analysis. (2014). *Kenya Economic Report 2013: Creating an enabling environment for stimulating investment for competitive and sustainable counties*. Nairobi: Government Printer.
17. Kenya Institute for Public Policy Research and Analysis. (2018). *Kenya Economic Report 2017: Sustaining Kenya's Economic Development by Deepening and Expanding Economic Integration in the Region.* Nairobi: Government Printer.
18. Kenya National Bureau of Statistics. (2012). *Kenya Economic Survey 2011*. Nairobi: Government Printer.
19. Kenya National Bureau of Statistics. (2014). *Kenya Economic Survey 2013.* Nairobi: Government Printer.
20. Kenya National Bureau of Statistics. (2015). *Kenya Economic survey 2014.* Nairobi: Government Printer.
21. Kenya National Bureau of Statistics. (2016). *Kenya Economic Survey 2015.* Nairobi: Government Printer.
22. Kenya National Bureau of Statistics. (2018). *Kenya Economic Survey 2017.* Nairobi: Government Printer.
23. Kenya National Bureau of Statistics. (2020). *Kenya Economic Survey 2019*. Nairobi: Government Printer.
24. Kenya National Bureau of Statistics. (2021). *Kenya Economic Survey 2019*. Nairobi: Government Printer.
25. Kothari, C. R., & Garg, G. (2019). *Research Methodology: Methods and Techniques* (4th ed.). New Delhi: New Age International Publishers Limited.
26. Kumar, R. (2015). *Research Methodology: A Step-By-Step Guide for Beginners* (4th ed.). London: Sage publications.
27. Latifi, M. A., Nikou, S., & Bouwman, H. (2021). Business model innovation and firm performance: Exploring causal mechanisms in SMEs. *Technovation*, *107*, 102274. https://www.sciencedirect.com/science/article/pii/S0166497221000559
28. McBurney, D. H. & White, T. L. (2010). *Research Methods* (8th ed.). Wadsworth: Cengage learning.
29. Mugenda, O. M., & Mugenda, A. G. (2019). *Research Methods: Quantitative and Qualitative Approaches* (3rd ed.). Nairobi: African Centre for Technology Studies.
30. Muturi, C. M., & Kariuki, P. (2018). Firm level determinants of strategy implementation in the energy sector in Nairobi, Kenya. *The Strategic Journal of Business & Change Management*, *5*(4), 814-832.
31. Oldenburg, B., & Glanz, K. (2008). Diffusion of innovations. *Health behaviour and health education: Theory, research, and practice*, *4*, 313-333.
32. Pati, R. K., Nandakumar, M. K., Ghobadian, A., Ireland, R. D., & O'Regan, N. (2018). Business model design–performance relationship under external and internal contingencies: Evidence from SMEs in an emerging economy. *Long Range Planning*, *51*(5), 750-769.
33. Rogers, E. M. (1995). *Diffusion of Innovations* (4th ed.). New York: The Free Press.
34. Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). New York: The Free Press.

35. Roscoe, J. T. (1975). *Fundamental Research Statistics for the Behavioural Sciences* (2nd ed.). New York: Holt, Rinehart and Winston Inc.
36. Saunders, M., Lewis, P., &Thornhill, A. (2019). *Research Methods for Business Students* (8th ed.). Harlow: Pearson Education Limited.
37. Shahwan, R., & Zaman, T. (2022). Questioning the novelty in a novel business model: how does strategic orientation temper firm performance?. *International Journal of Innovation Management*, *26*(08), 2250067.
38. Shibeika, A. & Harty, C. (2015). Diffusion of digital innovation in construction: a case study of a UK engineering firm. *Construction Management and Economics, 33*(5/6), 453-466.
39. Spieth, P., & Schneider, S. (2016). Business model innovativeness: designing a formative measure for business model innovation. *Journal of business Economics*, *86*(6), 671-696.
40. Teece, D. J. (2010). Business models, business strategy and innovation. *Long range planning*, *43*(2-3), 172-194.
41. Teece, D. J. (2014). The foundations of enterprise performance: Dynamic and ordinary capabilities in an (economic) theory of firms. *Academy of management perspectives*, *28*(4), 328-352.
42. Treece, E. W. & Treece, J. W. (1986). *Elements of Research* (4thed.). St. Louis, Missouri: Mosby Inc.
43. Were, A. (2016). *Manufacturing in Kenya: Features, Challenges and Opportunities.* Retrieved from: https://set.odi.org/wp-content/uploads/2016/09/Manufacturing-in-Kenya-Anzetse-Were.pdf
44. Xu, X., Yang, C., & Ren, J. (2020). Research on the Relationship between Novelty-Centered Business Model Innovation and Competitive Advantages of Sports Tourism—Based on the Empirical Analysis of Guizhou Province, China. *Journal of Service Science and Management*, *13*(02), 317-329.
45. Zhang, X., Yu, P. & Spil, I. T. A. M. (2015). Using diffusion of innovation theory to understanding the factors impacting patience acceptance and use of consumer e-health innovation: a case study in a primary care clinic. *BMC Health Services Research, 15*(7), 1-15. Doi:10.1186/s12913-015-0726-2.
46. Zhao, L., Sun, J., Zhang, L., He, P. and Yi, Q. (2021), "Effects of technology lock-in on enterprise innovation performance", European Journal of Innovation Management, Vol. 24 No. 5, pp. 1782-1805
47. Zikmund, W. G., Babin, B. J., Carr, J. C. & Griffin, M. (2013). *Business Research Methods* (9th ed.). Canada: South-Western Cengage Learning.