

AFRICAN JOURNAL OF ACCOUNTING AND SOCIAL SCIENCE STUDIES (AJASSS)

Volume 4

Issue No. 2

2022



Tanzania Institute of Accountancy (TIA)
P. O. Box 9522, Dar es Salaam, Tanzania
Email: ajasss@tia.ac.tz

**AFRICAN JOURNAL OF ACCOUNTING
AND SOCIAL SCIENCE STUDIES
(AJASSS)**



Volume 4

Issue No. 2

2022

Tanzania Institute of Accountancy (TIA)
P.O. Box 9522, Dar Es Salaam, Tanzania
Email: ajasss@tia.ac.tz

**AFRICAN JOURNAL OF ACCOUNTING AND SOCIAL
SCIENCE STUDIES (AJASSS)**



Volume 4 Issue No. 2 ISSN 2591-6815

Published by the Tanzania Institute of Accountancy

P.O. Box 9522, Dar Es Salaam,

TANZANIA

**TANZANIA INSTITUTE OF ACCOUNTANCY
(TIA)**



**AFRICAN JOURNAL OF ACCOUNTING AND SOCIAL
SCIENCE STUDIES (AJASSS)**

Volume 4 Issue No. 2

December 2022

ISSN 2591-6815

eISSN2591-6823 ONLINE

Published by the Tanzania Institute of Accountancy

P.O. Box 9522, Dar Es Salaam, TANZANIA

**Copyright © African Journal of Accounting
and Social Science Studies (AJASSS)**

All rights reserved, No part of this publication may be reproduced, stored in a retrieved system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior permission of the publisher.

Disclaimer: The opinions expressed in this Journal are those of the authors and not necessarily those of the publisher or the AFRICAN JOURNAL OF ACCOUNTING AND SOCIAL SCIENCE STUDIES (AJASSS)

**AFRICAN JOURNAL OF ACCOUNTING
AND SOCIAL
SCIENCE STUDIES (AJASSS)**

ISSUED TWICE A YEAR

EVERY JUNE AND DECEMBER

**AFRICAN JOURNAL OF ACCOUNTING
AND SOCIAL SCIENCE STUDIES (AJASSS)**

AJASSS EDITORIAL BOARD

Chairperson

Prof. Edda Lwoga - CBE, Tanzania

Managing editor

Dr. Elimeleck P. Akyoo - TIA, Tanzania

Associate Editors

Dr. Momole Kasambala - TIA, Tanzania

Dr. Aniceth Kato Mpanju - TIA, Tanzania

Prof. Florence Wakoko - Columbus State University, USA

Prof. Khaled Hussainey - University of Portsmouth, UK

Prof. Gerald Kagambire - Uganda Management Institute

Dr. Doaa Aly - University of Gloucestershire, UK

Dr. Philippa Ward - University of Gloucestershire, UK

Dr. Richard Jaffu - UDOM, Tanzania

Dr. Modest P. Assenga - TIA, Tanzania

Prof. Kim Abel Kayunze - SUA, Tanzania

Prof. John N. Jeckoniah - SUA, Tanzania

Dr. Alban Mchopa - Moshi Cooperative University, Tanzania

Dr. Indiael Daniel Kaaya - IFM, Tanzania

Dr. Joel Mmasa - UDOM, Tanzania

CPA Mutaju Marobhe - Tanzania Institute of Accountancy

TABLES CONTENTS

Academic Staff Mobility in Tanzania’s Higher Learning Institutions: Understanding the Push and Pull Factors	1
Beatrice M. Mkunde and Fabian Gallus Mahundu	1
https://dx.doi.org/10.4314/ajasss.v4i2.1	
Quantitative Analysis of Factors Influencing Financial Management among Village Community Banks’ Beneficiaries in Mbeya City, Tanzania	16
Asheri Mandesu Mwidege	16
https://dx.doi.org/10.4314/ajasss.v4i2.2	
Effect of Audit Opinions and Entity's Characteristics on Audit Committees' Effectiveness in Government Entities in Tanzania	34
Frank Arbogast Mwombeki	34
https://dx.doi.org/10.4314/ajasss.v4i2.3	
The Mediation Effect of Business Environment on How Firm Characteristics Relate to Environmental Disclosure in Tanzania's Extractive Industry	54
Ntui Ponsian, Henry Chalu and Siasa Mzenzi	54
https://dx.doi.org/10.4314/ajasss.v4i2.4	
Does Internal Audit Functions Effectiveness influence External Auditors’ Reliance on Internal Audit Work?	82
John Sosthenes Mapuli	82
https://dx.doi.org/10.4314/ajasss.v4i2.5	
The Influence of Customer Retention Practices on Performance of Micro and Small Agro-processing Enterprises in Tanzania	99
Eliakira Nnko	99
https://dx.doi.org/10.4314/ajasss.v4i2.6	
Challenges Facing Learners’ Acquisition of Employability Competencies under Competency-Based Education and Training Approach in Vocational Education and Training Centres in Tanzania	121
Shukurani Mgaya	121
https://dx.doi.org/10.4314/ajasss.v4i2.7	
Annualized Stock Market Returns Volatility: An Evidence of Dar es Salaam Stock Exchange	148
Asheri Mandesu Mwidege	148
https://dx.doi.org/10.4314/ajasss.v4i2.8	

Determinants of Social Media Marketing Adoption among Small and Medium Enterprises in Dar es Salaam - Tanzania	159
Justine Augustine and Makawa Nawa	159
<i>https://dx.doi.org/10.4314/ajasss.v4i2.9</i>	
Quality Assurance Practices in the Time of COVID 19: What Works in Tertiary Institutions in Tanzania	183
Mwita Sospeter, Alphonse J. Amuli and Issaya B Hassanal	183
<i>https://dx.doi.org/10.4314/ajasss.v4i2.10</i>	
Use of Social Media to Improve Marketing Performance of Selected Manufacturing Firms in Tanzania: Evidence from Coastal Region.....	196
Justine Augustine and Avitus Rushaka.....	196
<i>https://dx.doi.org/10.4314/ajasss.v4i2.11</i>	
Influence of Product Information on Processed Maize Flour Marketing by Small and Medium Millers in Dodoma City, Tanzania	220
Godlove A Mpandiko	220
<i>https://dx.doi.org/10.4314/ajasss.v4i2.12</i>	
Effects of Innovation on Business Performance: Empirical Evidence from Manufacturing Firms in Tanzania	237
Hussein Athumani Mwaifyusi and Ramadhani Kitwana Dau	237
<i>https://dx.doi.org/10.4314/ajasss.v4i2.13</i>	
Performance of Vat System in Tanzania Since Enactment of The Vat Act in 2014	258
Heriel E. Nguvava and Noah N. Athanas	258
<i>https://dx.doi.org/10.4314/ajasss.v4i2.14</i>	
Procurement Contract Management and Procurement Performance in Parastatal Organisations in Tanzania.....	272
Masoud, Y., Emmanuel, T, Salum, M,	272
<i>https://dx.doi.org/10.4314/ajasss.v4i2.15</i>	
Corporate Governance and Firm Performance: Evidence from Microfinance Institutions in Tanzania.....	286
Saimon Solomon and Victoria Makuya,.....	286
<i>https://dx.doi.org/10.4314/ajasss.v4i2.16</i>	
Stakeholders' Perception of the Impacts of Supply Chain Management on Tanzania Construction Projects' Performance.....	309
Ramadhani Said Tekka	309
<i>https://dx.doi.org/10.4314/ajasss.v4i2.17</i>	

Effects of Innovation on Business Performance: Empirical Evidence from Manufacturing Firms in Tanzania

Hussein Athumani Mwaifyusi¹, Ramadhani Kitwana Dau²

¹PhD Candidate, The Open University of Tanzania, husseinmway@gmail.com

²High Commissioner of the United Republic of Tanzania to Malaysia and Brunei.

He is also

Ambassador Extra Ordinary and Plenipotentiary to Indonesia, Thailand, Philippines, Cambodia and Laos, ramadau@gmail.com

*Corresponding author: email husseinmway@gmail.com

Abstract

Regardless of its relevance for business performance, the influence of innovation on the performance of manufacturing firms in Tanzania is not well documented. Thus, this study aimed to examine the effects of innovation on business performance of manufacturing firms in Tanzania. The study used cross-sectional design and quantitative approach. Copies of a structured questionnaire were administered to 420 participants from 28 manufacturing companies in Dar es Salaam and Coast Regions. An impressive response rate of 93.1% was achieved. Data were tested for reliability using Cronbach's alpha coefficient. Tests for normality, multicollinearity and autocorrelation were conducted, and the results showed the data were reliable, normally distributed, free of multicollinearity and autocorrelation problems. Descriptive and multiple regression statistical techniques were employed. The results suggested that a significant positive effect existed between performance of manufacturing firms and product innovation ($B=0.705$, $p=0.001$), process innovation ($B=0.640$, $p=0.000$) and marketing innovation ($B=.818$, $p=0.000$). The obvious implication to industry is that innovation is important to business success of the manufacturing companies, thus the governments should motivate firms to innovate continuously by giving incentives to invest in R&D. Past studies linking innovation and performance have focused on financial measures of performance. The major contribution of the current study is to use non-financial measures of performance such as business growth and responsiveness to change.

Keywords: Innovation, Manufacturing Firms, Business Performance

Received: 25-09-2022

Accepted: 30-11-2022

Published: 31-12-2022

<https://dx.doi.org/10.4314/ajasss.v4i2.13>

1.0 Introduction

In recent years, increased attention has focused on business performance in developed countries (Karabulut, 2015; Zhang et al., 2020), and empirical evidence suggests that performance of manufacturing companies is related to innovation (Emodi et al., 2017). Innovation is inevitable to firms wanting to enter new markets, expand market share, attain a competitive edge and increase performance (Aksoy, 2017; Adam, 2020; Al-Kalouti et al., 2020), especially in this age of technological changes and international competition that comes with it (Marzi et al., 2017; Moldner et al., 2020).

Innovation can be in the form of changes made by the company to existing methods (Nieves & Diaz-Meneses, 2016), or establishing new procedures related to provision of goods (Nataya & Sutanto, 2018). Innovation can also be in the form of product, process and marketing operations (Rosli & Sidek, 2013; Karabulut, 2015). Product innovation involves significant improvements to existing products (Thongsri & Chang, 2019; Gachigo et al., 2019) whilst process innovation is an improvement in production and delivery methods in order to drive down unit cost of production (Hee et al., 2019). Marketing innovation is identification of a niche in the market that will boost company sales (Udriyah et al., 2019). In brief, innovation is seeking solutions to current and future customer needs (Moreira et al., 2012; Suhag et al., 2017). Presence of stiff competition requires manufacturing firms to review their competitive position in the market (Moldner et al., 2020) and hence firms must constantly innovate. This explains why innovation has occupied a centre stage in the literature in the last two decades.

In spite of this growing interest, studies that link performance with innovation in the manufacturing sector are scant, especially in the African continent (Otieno & Omwanza, 2018). Literature is rich in studies that relate innovation with performance in developed countries (Al-Kalouti et al., 2020). However, with the exception of Latip (2012), most past studies (Gunday et al., 2011; Karabulut, 2015; Emodi et al., 2017; Hee et al., 2019; Chen et al., 2020) that have linked innovation and performance have focused on financial rather than other equally important measures of performance such as business growth and responsiveness to change. The current study attempts to fill in this gap. Specifically, this study seeks to examine the effect of product, process and marketing innovation on business performance of manufacturing firms, measured by business growth and responsiveness to change.

This study was guided by the resource based theory. This is a managerial framework used to determine the strategic resources a firm can exploit to achieve sustainable

competitive advantage (Lee et al., 2019). Latip (2012) asserts that innovation as intangible asset can help to increase achieve sustainable competitive advantage and increase business performance. Innovation in terms of product, process and marketing plays a significant role to foster business performance (Spescha & Woerter, 2019). Latip (2012) defined business performance as the outcome of firm's ability to innovate while researchers such as Maemunah (2019); Lee et al. (2019) defined business performance as the attainment of internal and external objectives of the company including its growth. Latip (2012) divided business performance into two dimensions namely, business growth and responsiveness to change. Business growth refers to expansion of business operations and their outcomes (Spescha & Woerter, 2019), measured through the level of competitiveness, business resilience, business expansion and increase in number customers. Responsiveness to change is described as the ability of the firm to respond to changes to its immediate environment which is measured through flexibility, product development review, receptiveness to transformation, and fulfilling customer needs (Latip, 2012).

In the literature, innovation is divided into three major components namely, product, process and marketing innovations (Rosli & Sidek, 2013; Karabulut, 2015). Typical product innovation can take various forms such as introduction of completely new quality products (Emodi et al., 2017; Nataya & Sutanto, 2018; Xie et al., 2019) or making substantial improvements to existing product design (Chuah et al., 2016; Nieves & Diaz-Meneses, 2016) in order to meet evolving customer needs and increase market share (Wang & Chen, 2020). Product innovation is essential to business performance because it plays a significant role to attract new customers by promising superior products, expanding market segments of the company and increasing product lines (Aksoy, 2017; Ramadani et al., 2019). The constructs of product innovations are new model of product, new raw material, new product and product development (Homburg et al., 2015; Karabulut, 2015; Awwad & Akroush, 2016). In the current study, product innovation is defined as introducing a product or product features for which no comparable product exists in the market in which the product is sold.

Process innovation is an improvement in manufacturing processes (Barasa et al., 2019; Sari et al., 2019; Anwar et al., 2020) which involve changes of input materials (i.e., material substitution or modifications of input ratios), or improvement in production equipment, process control technologies, or process settings (Onufrey & Bergek, 2020). Nguyen & Harrison (2019); O'Brien (2020); Tian & Wang (2020) described process innovation as a number of heterogeneous activities such as introduction of equipment, new management practices, and changes in the production process which may lead to adopting new manufacturing methods (Hee

et al., 2019). The constructs of process innovation involves new production procedures, earlier production process, record keeping and new manufacturing methods (Karabulut, 2015; Hee et al., 2019). Drawing from past literature on the subject, the current study defines process innovation as implementation of new or improvements to existing production techniques including upgrading of equipment and production organization.

Finally, marketing innovation is a process of identifying and developing a mix of target markets, while searching for the best way to serve those markets (Aksoy, 2017; Ramadhani et al., 2019; Turulja & Bajgoric, 2020). It can involve using different pricing and promotional techniques (Chuah et al., 2016; Moreira et al., 2012), especially to companies wanting to enter and exploit new markets (Correia et al., 2019). The constructs of marketing innovation are new packaging, change in price, new promotion method and new sales techniques (Karabulut, 2015; Chuah et al., 2016; Correia et al., 2019). Based on varying definitions, in the current study, marketing innovation is defined as application of different and more efficient techniques in promoting products through changes in packaging, branding, promotion, and pricing strategy.

Drawing from the resource-based theory and literature, the conceptual framework of the current study is presented below:

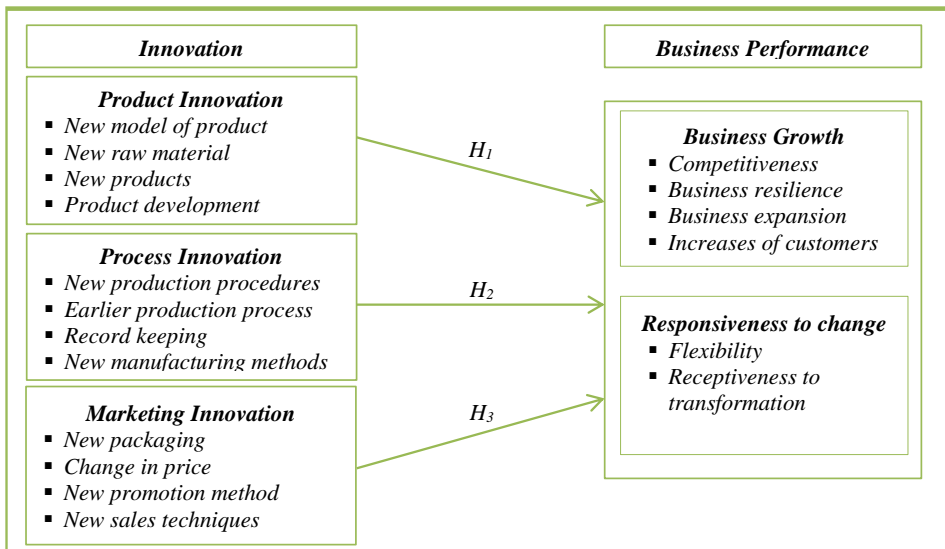


Figure 1: Conceptual Framework

Hypotheses

Given the above research model, the current study sought to test the following hypotheses:

H1: Product innovation is positively related to business performance

H2: Process innovation is positively related to business performance

H3: Marketing innovation is positively related to business performance

The rest of the paper is structured as follows: Section 2 describes the methodology used to collect and analyse the data while section 3 presents the findings and discussion. Section 4 provides conclusions, and implications to industry and policy.

2.0 Methodology

The study was conducted in Dar es Salaam and Coast Regions. The areas were purposively selected because they had the highest industrial density in Tanzania (Wangwe et al., 2014). The study employed cross-sectional research design whereby data were collected at a single point of time. Cross-sectional research design was used because it allows collection of data from a larger sample for inferential analysis. Thus, quantitative research approach was used because the study aimed to establish the effect of product, process and marketing innovation on business performance.

The sample size was determined using Stevens (1996) formula. Random sampling procedure was used to select a representative sample of manufacturing companies. A sample of 420 employees was randomly chosen. The sample was drawn across the organization, i.e., 5 people each from Management, Supervisors and Operational staff; making 15 participants from each manufacturing company. A structured questionnaire was administered to 420 participants from 28 manufacturing companies in Dar es Salaam and Coast Regions. Using Wiseman & Billington (1984) formula, a response rate of 93.1% was attained (391 respondents) and was considered very high in view of the benchmark of 35% set by Freise & Seuring (2015). Considering internal non-responses, in the end 375 questionnaire copies were usable.

The constructs used in this study (product innovation, process innovation, marketing innovation and business performance) are latent variables that cannot be observed directly. Data for this study were based on modification of research instruments from studies by Latip (2012); Karabulut (2015); Correia et al., (2019). All questions used in this study were measured by 5 points Likert scale. Product innovation was measured by using four metrics namely, new model of product (5 items), new raw material (4 items), new product (4 items) and product development (5 items). The first was adopted from Homburg et al., (2015) while the last three

were adopted from earlier studies by Karabulut (2015); Awwad & Akroush (2016); Emodi et al., (2017); Nataya & Sutanto (2018). In total, 18 items were used to measure product innovation.

Process innovation was measured by four constructs adopted from Karabulut (2015); Hee et al., (2019). These are: new production procedures (4 items), earlier production process (4 items), record keeping (5 items), and new manufacturing methods (4 items). In all, 17 items were used to measure process innovation. Finally, marketing innovation was measured by 16 items namely, new packaging (4 items), change in price (4 items), new promotion method (4 items) and new sales techniques (4 items). These were taken from studies by Karabulut (2015); Chuah et al., (2016); Moreira et al., (2012); Correia et al., (2019). All in all, 51 items were used to measure independent variables. A total of 24 items were adopted from Latip (2012) and were used to measure the dependent variable namely, business performance. These are: competitiveness (4 items), business resilience (4 items), business expansion (4 items), increases of customers (4 items), flexibility (4 items) and receptiveness to transformation (4 items).

The data that were collected were analysed descriptively by computing descriptive statistics and inferentially by multiple linear regression analysis. Descriptive statistics were used to describe the basic features of the data. Multiple linear regression was used to test the hypothesis and establishing the effect of product, process and marketing innovation on business performance of manufacturing companies. The analysis of data was aided by Statistical Package for Social Scientists (SPSS) version 23. Prior to the analysis, checks for reliability, autocorrelation, normality, multi-collinearity, and homoscedasticity were conducted. Thus, the study used the following multiple regression equations:

$$BP=f(Pi, Pri, Mi).....(i)$$

Where BP = Business performance, Pi = Product innovation; Pri = Process innovation and Mi = Marketing innovation.

This relationship can also be represented by the following empirical equation:

$$BP = \beta_0 + \beta_1Pi + \beta_2Pri + \beta_3Mi + \varepsilon_i.....(ii)$$

The following equation was established because Pi, Pri and Mi are composites:

$$BP = \beta_0 + \beta_1Nmp + \beta_2Nrm + \beta_3Np + \beta_4Pd + \beta_5Npp + \beta_6Epp + \beta_7Rc + \beta_8Nmm + \beta_9Npa + \beta_{10}Cp + \beta_{11}Npm + \beta_{12}Nst + \varepsilon_i.....(iii)$$

Where: Nmp = New model of product, Nrm = New raw material, Np = New products, Pd = Product development, Npp = New production procedures, Epp = Earlier production process, Rc = Record keeping, Nmm = New manufacturing methods, Npa = New packaging, Cp = Change in price, Npm = New promotion method, and Nst = New sales techniques.

3.0 Results and Discussion

Multivariate Outliers Check

Before making inferential analysis, it is important to detect the existence of outliers in the dataset to avoid rendering the results inaccurate and unreliable (Hesamian & Akbari, 2020). The current study employed Mahalanobis Distance to check for outliers. Except for one variable, all others had no outlier values. This problem was addressed by replacing the outlier with a mean value as suggested by Kamboj & Gupta (2020).

Normality Test

Data were tested for normality using Kolmogorov Smirnov and Shapiro–Wilk statistic whose findings are reported in Table 1. All values for dependent and independent variables were higher than 0.05 implying the normality assumption was met (Hair et al., 2017).

Table 1: Tests of Normality

Variables	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Business Performance	.153	375	.072	.992	375	.003
Product Innovation	.159	375	.083	.991	375	.001
Process Innovation	.270	375	.217	.979	375	.000
Marketing Innovation	.269	375	.163	.989	375	.000

a. Lilliefors Significance Correction

Test for Linearity Assumption

Linearity assumption test was carried out using Normal p-p plot. This was followed by correlation analysis between business performance and product innovation ($r = 0.758$, $p < 0.01$), and process innovation ($r = 0.629$, $p < 0.01$), and marketing innovation ($r = 0.774$, $p < 0.01$). The results confirmed the linearity assumption had not been violated (Pallant, 2016).

Multicollinearity

One of the assumptions of linear regression model is the absence of multicollinearity among predictor variables included in the model. In chapter 10 of his book, Gujarati (1988) explains in detail how to detect and deal with

multicollinearity. Existence of multicollinearity is a serious problem in regression analysis. This can be detected by three different techniques namely, (1) a bivariate correlation analysis among predictor variables (2) calculation of Variance Inflation Factors-VIFs) and (3) inspection of the eigensystem of the independent variables. In this study, VIF was used whose results are presented in Table 2 below.

Table 2: Tests of Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	Product Innovation	.638	1.567
	Process Innovation	.739	1.354
	Marketing Innovation	.779	1.283

a. Dependent Variable: Business Performance

According to Pallant (2016), if the tolerance values are less than 0.2, and VIF values are above 5, multicollinearity is at work. Clearly, the results in Table 2 show that multicollinearity was not a problem in the current study.

Autocorrelation

Durbin-Watson test was employed to check existence of autocorrelation as recommended by previous studies such as Mmasi & Mwaifyusi (2021); Chatterjee & Price (1977). The results in Table 3 show that there is no statistically significant autocorrelation in this study.

Table 3: Model Summary for Durbin-Watson

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Durbin-Watson
1	.816 ^a	.667	.641	0.00621	1.880

a. Predictors: (Constant), Marketing Innovation, Product Innovation, Process Innovation

b. Dependent Variable: Business Performance

Validity and Reliability Test

Content Validity was ensured through comprehensive literature review on both, dependent and independent variables as suggested by Halek et al., (2017). The questionnaire was reviewed by three renowned academicians in Tanzania whose comments were incorporated in the final research instrument. Construct Validity was achieved through examining the correlation coefficient among the variables making innovation scale as recommended by Raven et al., (2008). The construct has two main elements namely, convergent validity and discriminant validity (Subramanian & Gopalakrishna 2001). Convergent Validity was measured by using factor loadings through Confirmatory Factor Analysis - CFA (Santor et al., 2011).

Appendix 1 shows that factor loadings for all variables are greater than 0.5, thereby passing the threshold set by Hair et al., (2010). Moreover, the correlation between the three constructs of innovation range from 0.79 to 0.89 (Significance < 0.01). This strong correlation between the three constructs is a further confirmation of presence of convergent validity (Raven et al., 2008). Discriminant Validity was examined by using Average Variance Extracted (AVE). Subramanian and Gopalakrishna (2001) proposed that to achieve discriminant validity, AVE values should be greater than the squared correlation coefficient, as is the case in the current study.

Reliability test was conducted by using Cronbach's alpha which is a commonly used measure of reliability (Novick & Lewis 1967; Nunnally 1978; Churchill 1979). A Cronbach's alpha value of higher than 0.7 indicate internal consistency of the measures employed (Peter & Churchill 1986 p. 7; Hair et al., 2017). The results in Appendix 1 show that the alpha values for all independent variables are higher than the threshold.

Results from Factor Analysis

Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of sphericity must be conducted in order to establish the fitness of the data for factor analysis (Zulkepli et al., 2017). The results in Appendix 1 show the KMO value is 0.746 which suggests that the data was fit for EFA (Kaiser 1974). In addition, the results of Bartlett's test for sphericity was highly significant ($p \leq 0.001$); giving more credence for using factor analysis.

Homoscedasticity Test

A final test was made to determine if all observations are normally distributed. Homoscedasticity occurs when one or more variables in the model violate this condition. Our data set failed homoscedasticity test in both Breusch Pagan ($\chi^2 = 17.41, p < 0.002$) and Koenker ($\chi^2 = 8.63, p = 0.02$) as all p values were less than 0.05. This problem was fixed with the help of Ahmad Daryanto's plug-in for SPSS for creating heteroscedasticity robust standard errors as suggested by Berenguer-Rico & Wilms (2020).

Testing of Hypotheses

To recap, this study sought to test the following hypotheses:

- H₁: Product innovation is positively related to business performance
- H₂: Process innovation is positively related to business performance
- H₃: Marketing innovation is positively related to business performance

These were tested collectively using inferential statistical techniques whose results are reported below.

Correlation Analysis

The results in Table 4 show performance is strongly linked with innovation. These results are consistent with previous studies by Otieno & Omwanza, (2018); Al-Kalouti et al., (2020); Baporikar & Shikokola (2020).

Table 4: Descriptive Statistics, Reliabilities and Correlation

Variable	N	Mean	S.D	1	2	3	4
Product Innovation	375	41.05	5.79	0.83			
Process Innovation	375	38.67	5.72	373**	0.89		
Marketing Innovation	375	35.99	4.87	390**	412**	0.79	
Business Performance	375	39.42	5.48	.758**	.629**	.774**	.836

*p < .05; **p < .01 (2-tailed)

Multiple Regression Analysis

Multiple regression was used to examine the ability of the three independent variables namely, product, process and marketing innovations to predict business performance in the manufacturing companies.

Table 5: Regression Analysis of Innovation and Business Performance

Variable	B	SE (b) [§]	B	T	P
Constant	19.412			7.131	.000
Product Innovation	.705	.149	.312	3.197	.001
Process Innovation	.640	.125	.376	3.502	.000
Marketing Innovation	.818	.228	.305	3.049	.000

R² = .667%, F-statistic=189.187, p < .001. [§]heteroscedasticity-robust standard errors

Results in Table 5 show a coefficient of determination (R²) of 0.667, with an F-statistic of 189.187 (p value = 0.000). This implies that 66.7% of business performance in the manufacturing companies was explained by product, process and marketing innovation. These results are consistent with results of previous studies by Awwad & Akroush (2016); Nataya & Sutanto (2018); Ramadani et al., (2019), Wang & Chen (2020); Xie et al., (2019).

A closer look at Table 5 shows that product innovation had a significant and positive effect on business performance of manufacturing companies in Tanzania (B=0.705, p=0.001). This implies that product innovation help to increase the business performance of the manufacturing companies. This is consistence to findings of a study by Awwad and Akroush (2016) who found that product innovation plays

significant contribution to increase the business performance. The results are also in line with results of studies by Nataya and Sutanto (2018); Ramadani et al., (2019); Wang and Chen, (2020) who revealed that product innovation has positive effect on business performance.

Moreover, the study found that process innovation has significant and positive effect on business performance of the manufacturing companies in Tanzania ($B=0.640$, $p=0.000$). This result implies that process innovation contributes to increasing business performance of the manufacturing companies in the Tanzanian context. The results support the notion that process innovation in manufacturing companies plays a vital role to increase business performance as reported by Adam et al. (2020). This relates to findings reported by previous studies such as ones by Anwar et al. (2020); O'Brien (2020); and Tian and Wang (2020) who affirm that process innovation tends to introduce modern technical principles, approaches and production modes which aim to produce new products or improved the existing products and increase the production efficiency of existing products.

Furthermore, the study found that marketing innovation is the single most important factor in explaining business performance of the manufacturing companies in Tanzania ($B=0.818$, $p=0.000$). The results imply that marketing innovation play essential role to increase the business performance of the manufacturing companies. These results are surprising partly because they are at variance with findings of previous studies by Karabulut (2015), Rosli & Sidek (2013); Emodi et al. (2017) and they defy logic. Conventional wisdom would suggest product innovation should have been the most important factor to account for company performance because they are difficult or at least take a long time to imitate. In addition, product innovation leads to production of good quality products which in turn will improve company performance through customer satisfaction and loyalty.

4.0 Conclusion and Recommendations

In conclusion, this study has found that innovation in all its forms namely product, process and marketing innovation has a positive effect on business performance of manufacturing firms in Tanzania. The general pattern of multiple regression is consistent with hypothesized relationships. More importantly, this study has demonstrated that marketing innovation and product innovation are the most important factors to good performance in manufacturing firms in Tanzania.

The study recommends that the management of manufacturing companies should invest in innovation as it helps increase the business performance of the manufacturing companies. The management should invest in product, process and

marketing innovation which are revealed to be vital for the performance of the manufacturing companies.

The government should motivate manufacturing companies to put much effort on innovation because it helps the manufacturing companies increase performance. The sector is important for Tanzania's economy as it creates more jobs which may lead to more taxes. Motivation from the government can be in different forms including tax allowance on expenditure in R&D.

References

- Adam, J. K., Indradewa, R., and Syah, T. Y. R. (2020). The leadership styles impact, in learning organizations, and organizational innovation towards organizational performance over manufacturing companies in Indonesia. *Journal of multidisciplinary academic*, 4(2), 63-69.
- Aksoy, H. (2017). How do innovation culture, marketing innovation and product innovation affect the market performance of small and medium-sized enterprises (SMEs). *Technology in Society*, 51(4), 133-141.
- Albaum, G., Best, R., and Hawkins, D. (1977). The measurement properties of semantic scale data. *Journal of the Market Research Society*. *Journal of Marketing Research Society*, 19 (1), 21-26.
- Al-Kalouti, J., Kumar, V., Kumar, N., Garza-Reyes, J. A., Upadhyay, A., and Zwegelaar, J. B. (2020). Investigating innovation capability and organizational performance in service firms. *Strategic Change*, 29(1), 103-113.
- Anwar, M., Zaman Khan, S., and Ali Shah, S. Z. (2020). A study of the relationship between innovation and performance among NPOs in Pakistan. *Journal of Social Service Research*, 46(1), 26-40.
- Awwad, A., and Akroush, M. N. (2016). New product development performance success measures: an exploratory research. *EuroMed Journal of Business*, 11 (1), 1-27.
- Baporikar, N., and Shikokola, S. (2020). Enhancing innovation adoption to boost SMEs performance. *International Journal of Innovation in the Digital Economy (IJIDE)*, 11(1), 1-20.
- Barasa, L., Vermeulen, P., Knobens, J., Kinyanjui, B., and Kimuyu, P. (2019). Innovation inputs and efficiency: manufacturing firms in Sub-Saharan Africa. *European Journal of Innovation Management*, 22(1), 59-83.
- Berenguer-Rico, V. and Wilms, I. (2020). Heteroscedasticity Testing after Outlier Removal. *Econometric Reviews*, 7 (3), 1-35.
- Cai, R., Ye, J., Qiao, J., Fu, H., and Hao, Z. (2020). FOM: Fourth-order moment based causal direction identification on the heteroscedastic data. *Neural*

- Networks, 124, 193-201.
- Champion, D.J. (1968). Some Observations on Measurement and Statistics: Comment, *Social Forces*, 46, 541.
- Chatterjee, S. and Price, B. (1977). *Regression Analysis by Example*. 4th edn. John Wiley & Sons, Inc, pp.87.
- Chen, Q., Wang, C. H., and Huang, S. Z. (2020). Effects of organizational innovation and technological innovation capabilities on firm performance: evidence from firms in China's Pearl River Delta. *Asia Pacific Business Review*, 26(1), 72-96.
- Chuah, S. H. W., Marimuthu, M., and Ramayah, T. (2016). The Contribution of Perceived Firm Marketing Innovation Initiatives to Customer Perceived Value and Loyalty: Does Switching Experience Really Matter?. *Asian Academy of Management Journal*, 21(1), 1-23.
- Churchill, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of marketing research*, 16(1), 64-73.
- Correia, A., Braga, V., Machado, A., and Braga, A. (2019). Strategies and obstacles for marketing innovation activities. *Global Business and Economics Review*, 21(3-4), 519-532.
- Cui, L. (2020). The Impact of Innovation Input on Innovation Performance from the Perspective of Differentiation Strategy. *International Journal of Social Science and Education Research*, 2(12), 121-133.
- Emodi, N. V., Murthy, G. P., Emodi, C. C., and Emodi, A. S. A. (2017). Factors influencing innovation and industrial performance in Chinese manufacturing industry. *International Journal of Innovation and Technology Management*, 14(6), 1-32.
- Freise, M. and Seuring, S. (2015). Social and Environmental Risk Management in Supply Chain: A Survey in the Clothing Industry. *Logistic Research*, 8 (1), 2-19.
- Gachigo, S. M., Kahuthia, J., and Muraguri, C. (2019). Exploration innovative strategy and performance of the telecommunication industry in Kenya: A case of Safaricom Plc in Nairobi Metropolis. *International Academic Journal of Human Resource and Business Administration*, 3(6), 299-319.
- Gujarati, D.N. (1980). *Basic Econometrics*, 2nd ed. New York, McGraw-Hill, 67-87
- Gunday, G., Ulusoy, G., Kilic, K., & Alpkan, L. (2011). Effects of innovation types on firm performance. *International Journal of production economics*, 133(2), 662-676.
- Hair, J., Black, W. C., Babin, B. J. and Anderson, R. E. (2010). *Multivariate Data Analysis*, 7th edition, Prentice-Hall. Upper Saddle River, New Jersey.

- Hair, J., Hult, G. Ringle, C. and Sarstedt, M. (2017). *A Primer in Partial Least Squares Structural Equation Modeling (PLS–SEM)*, 2nd Edition, Sage Publication, Los Angeles.
- Halek, M., Holle, D., and Bartholomeyczik, S. (2017). Development and Evaluation of the Content Validity, Practicability and Feasibility of the Innovative Dementia-Oriented Assessment System for Challenging Behaviour in Residents with Dementia. *BMC health services research*, 17(1), 554-564.
- Hee, O. C., Kuan, T. M., Ping, L. L., Kowang, T. O., and Fei, G. C. (2019). Determinants of Innovative Performance in the Manufacturing Industry in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 9 (1), 380-387.
- Henkel, R. E. (1975). Reply to Labovitz's Paper: Philosophy of Science, Scientific Responsibility, and the Level of Measurement-Permissible Statistics Issue. *Pacific Sociological Review*, 18(1), 36-39.
- Hesamian, G., and Akbari, M. G. (2020). A robust varying coefficient approach to fuzzy multiple regression model. *Journal of Computational and Applied Mathematics*, 371, 1-25.
- Homburg, C., Schwemmler, M., and Kuehnl, C. (2015). New product design: Concept, measurement, and consequences. *Journal of marketing*, 79(3), 41-56.
- Kahyarara, G. (2013). Market Competition and Performance of Tanzanian Manufacturing. *Journal of Business and Economics*, 4(1), 86-103.
- Kamboj, R. and Gupta, V. (2020). Spatial Correlation Based Outlier Detection in Clustered Wireless Sensor Network, In *International Conference on Intelligent Computing and Smart Communication 2019*, Springer, Singapore, 127-135.
- Karabulut, A. T. (2015). Effects of Innovation Types on Performance of Manufacturing Firms in Turkey. *Procedia-Social and Behavioral Sciences*, 195, 1355-1364.
- Karimi, C. and Oluoch, O. (2019), Effect of Bank Innovations on Financial Growth of Commercial Banks in Kenya. *International Journal of Social Sciences and Information Technology*, 5 (5), 214-230.
- Kotler, P. (1988). *Marketing Management: Analysis, Planning, Implementation and Control*, Prentice-Hall, Inc., Englewood Cliffs, NJ: 6th ed.
- Labovitz, S. (1967). Some Observations on Measurement and Statistics. *Social Forces*, 46(2), 151-160.
- Labovitz, S. (1968). Reply to Champion and Morris, *Social Forces*. 46, 543-544.
- Labovitz, S. (1970). The Assignment of Numbers to Rank Order Categories. *American Sociological Review*, 35, 515-524.

- Labovitz, S. (1975). Comment to Henkel's Paper: Interplay between Measurement and Statistics. *Pacific Sociological Review*, 18, 27-35.
- Latip, H. (2012). *Network Relationships for Business Performance: A Social Capital Perspective*, Unpublished Doctoral Dissertation, RMIT University.
- Lee, R., Lee, J. H., and Garrett, T. C. (2019). Synergy effects of innovation on firm performance. *Journal of Business Research*, 99, 507-515.
- Maemunah, S. (2019). The Effect of Corporate Reputation and Sustainable Innovation Strategy on Business Performance in Automotive Companies. *Business and Entrepreneurial Review*, 18(1), 65-74.
- Martilla, J.A., and Carvey, D.W. (1975). Four Subtle Sins in Marketing Research. *Journal of Marketing*, 39(1), 8-15.
- Marzi, G., Dabic, M., Daim, T., and Garces, E. (2017). Product and process innovation in manufacturing firms: a 30-year bibliometric analysis. *Scientometrics*, 113(2), 673-704.
- Mattsson, J., and Orfila-Sintes, F. (2013). Hotel Innovation and Its Effect on Business Performance. *International Journal of Tourism Research*, 16(4), 388-398
- Mayer, L.S. (1970). Comment on the Assignment of Numbers to Rank Order Categories. *American Sociological Review*, 35, 916-917.
- Mazengo, S. D., and Mwaifyusi, H. A. (2021). The Effect of Liquidity, Profitability and Company Size on Dividend Payout: Evidence from Financial Institutions Listed in Dar Es Salaam Stock Exchange. *Business Education Journal*, 1(2), 1-12.
- Mmasi, A., and Mwaifyusi, H. A. (2021). Determinants of Brand Performance: Empirical Evidence from Tanzanian Brewing Companies. *Business Education Journal*, 10 (3), 1-16.
- Moldner, A.K., Garza-Reyes, J.A., and Kumar, V. (2020). Exploring Lean Manufacturing Practices' Influence on Process Innovation Performance. *Journal of Business Research*, 106, 233-249.
- Moreira, J., Silva, M. J., Simoes, J., and Sousa, G. (2012). Marketing innovation: Study of determinants of innovation in the design and packaging of goods and services Application to Portuguese firms. *Contemporary Management Research*, 8(2), 118-130.
- Morris, R.N. (1968). Some Observations on Measurement and Statistics: Further Comment. *Social Forces*, 46, 541-542.
- Nataya, A. and Sutanto, J. E. (2018). The Effect of Product Innovation and Service Innovation towards Marketing Performance: Case Study on Plastic Producer in Surabaya. *International Journal of Business and Management Invention (IJBMI)*, 7(8), 61-66.

- Ndesaulwa, A. P. and Kikula, J. (2016). The Impact of Innovation on Performance of Small and Medium Enterprises (SMEs) in Tanzania: A Review of Empirical Evidence. *Journal of Business and Management Sciences*, 4(1), 1-6.
- Nguyen, H. and Harrison, N. (2019). Leveraging Customer Knowledge to Enhance Process Innovation: Moderating Effects from Market Dynamics. *Business Process Management Journal*, 25(2), 307-322.
- Nieves, J. and Diaz-Meneses, G. (2016). Antecedents and Outcomes of Marketing Innovation: An Empirical Analysis in the Hotel Industry. *International Journal of Contemporary Hospitality Management*, 28(8), 1554-1576.
- Nikolaou, I. E. (2019). A Framework to Explicate the Relationship between CSER and Financial Performance: An Intellectual Capital-Based Approach and Knowledge-Based View of Firm. *Journal of the Knowledge Economy*, 10(4), 1427-1446.
- Novick, M. and Lewis, G. (1967). Co-efficient Alpha and the Reliability of Composite Measures. *Psychometrica*, 13, 1-13.
- Nunnally, J.C. (1978). *Psychometric Theory*, 2nd ed. McGraw-Hill, Inc.
- O'Brien, K. (2020). Innovation Types and the Search for New Ideas at the Fuzzy Front End: Where to Look and How Often? *Journal of Business Research*, 107, 13-24.
- Onufrey, K. and Bergek, A. (2020). Second Wind for Exploitation: Pursuing High Degrees of Product and Process Innovativeness in Mature Industries. *Technovation*, 89, 1-13.
- Otieno, M.O. and Omwanza, C. (2018). Effect of Product Innovation on Financial Performance of Private Manufacturing Firms in Kenya. *International Journal of Business and Management Studies*, 2(1), 51-67.
- Pallant, J. (2016). *SPSS Survival Manual: A Step-by-Step Guide to Data Analysis using IBM SPSS*, 6th ed., Berkshire: McGraw Hill Pearson.
- Parasuraman A. (1981). Hang on to Marketing Concept, *Business Horizon*, 38-40.
- Pena-Lopez, I. (2016). *Innovating Education and Educating for Innovation. The Power of Digital Technologies and Skills*, OECD Publishing, Paris.
- Peter, J. P., and Churchill Jr, G. A. (1988). Relationships among research design choices and psychometric properties of rating scales: A meta-analysis. *Journal of Marketing Research*, 23(1), 1-10.
- Potocan, V. and Nedelko, Z. (2012). Influence of Employees' Values on Organizational Innovativeness. *Entrepreneurship and Innovation*, 203-218.
- Ramadani, V., Hisrich, R. D., Abazi-Alili, H., Dana, L. P., Panthi, L., and Abazi-Bexheti, L. (2019). Product innovation and firm performance in transition economies: A multi-stage estimation approach. *Technological Forecasting and Social Change*, 140, 271-280.

- Raven, E. E., Haverkamp, D., Sierevelt, I. N., Van Montfoort, D. O., Pöll, R. G., Blankevoort, L., and Tak, P. P. (2008). Construct validity and reliability of the disability of Arm, shoulder and hand questionnaire for upper extremity complaints in rheumatoid arthritis. *The Journal of rheumatology*, 35(12), 2334-2338.
- Rosli, M.M. and Sidek, S. (2013). The Impact of Innovation on the Performance of Small and Medium Manufacturing Enterprises: Evidence from Malaysia. *Journal of Innovation Management in Small & Medium Enterprise*, 2013, 1-16.
- Sansa, N. A. (2020). A Quantitative Analysis for the Tanzania Industries Performance and Productivity. *American Journal of Economics and Business Management*, 3(1), 273-294.
- Santor, D. A., Haggerty, J. L., Levesque, J. F., Burge, F., Beaulieu, M. D., Gass, D., and Pineault, R. (2011). An overview of confirmatory factor analysis and item response analysis applied to instruments to evaluate primary healthcare. *Health Policy*, 7(Spec Issue): 79 – 92.
- Sari, Y., Mahrinasari, M., Ayi, A., and Marselina, M. (2019). Model of improving tourism industry performance through innovation capability. *Journal of Environmental Management and Tourism*, 10(4), 852-863.
- Saunders, M., Lewis, P. and Thornhill, A. (2012). *Research Methods for Business Students*, 6thed., Italy: Rotolito, Lombarda.
- Spescha, A. and Woerter, M. (2019). Innovation and Firm Growth over the Business Cycle. *Industry and Innovation*, 26(3), 321-347.
- Stevens, J. (1996). *Applied Multivariate Statistics for the Social Science*, Mahwah, NJ: Erlbaum.
- Subramanian, R., and Gopalakrishna, P. (2001). The Market Orientation–Performance Relationship in the Context of a Developing Economy: An Empirical Analysis. *Journal of Business Research*, 53(1), 1-13.
- Suhag, A., Solangi, S., Larik, R., Lakh, M., and Tagar, M. (2017). The Relationship of Innovation with Organizational Performance. *International Journal of Research- Granthaalayah*, 5(2), 292-306.
- Thongsri, N., and Chang, A. (2019). Interactions among Factors Influencing Product Innovation and Innovation Behaviour: Market Orientation, Managerial Ties, and Government Support, *Sustainability*, 11, 1-21.
- Tian, H., and Wang, Z. (2020). Chinese Green Process Innovation in Automotive Painting: The Strategic Niche Management Perspective. *International Journal of Environmental Science and Technology*, 17(2), 993-1010.
- Turulja, L., and Bajgoric, N. (2020). Knowledge Acquisition, Knowledge Application, and Innovation towards the Ability to Adapt to Change. In

- Disruptive Technology: Concepts, Methodologies, Tools, and Applications, IGI Global, 1019-1036.
- Udriyah, U., Tham, J., and Azam, S. (2019). The Effects of Market Orientation and Innovation on Competitive Advantage and Business Performance of Textile SMEs. *Management Science Letters*, 9(9), 1419-1428.
- Wilson, T.P. (1971). Critique of Ordinal Variables. *Social Forces*, 49, 432-444.
- Wang, F., and Chen, K. (2020). Do Product Imitation and Innovation Require Different Patterns of Organizational Innovation? Evidence from Chinese Firms. *Journal of Business Research*, 106, 60-74.
- Wang, G., Tian, X., Hu, Y., Evans, R. D., Tian, M., and Wang, R. (2017). Manufacturing process innovation-oriented knowledge evaluation using MCDM and fuzzy linguistic computing in an open innovation environment. *Sustainability*, 9(9), 1630.
- Wiseman, F. and Billington, M. (1984). Comment on a Standard Definition of Response Rates, *Journal of Marketing Research*. 21(3), 336-338
- Wangwe, S., Mmari, D., Aikaeli, J., Rutatina, N., Mboghoina, T., and Kinyondo, A. (2014). The Performance of the Manufacturing Sector in Tanzania: Challenges and the Way Forward, WIDER Working Paper No. 2014/085.
- Xie, X., Huo, J., and Zou, H., (2019). Green Process Innovation, Green Product Innovation, and Corporate Financial Performance: A Content Analysis Method. *Journal of Business Research*, 101, 697-706.
- Zhang, Y. F., Namazi, M., Guo Y.Q., and Li, X. (2020). Finance Business Partnering and Manufacturing Firms' Performance: A Mediating Role of Non-Financial Performance. *Journal of Business Economics and Management*, 21(2), 473-496.
- Zulkepli, M., Sipan, I. and Jibril, J. D. (2017). An exploratory Factor Analysis and Reliability Analysis for Green Affordable Housing Criteria Instrument. *International Journal of Real Estate Studies*, 11(4), 9-21.

APPENDICES

Appendix 1: Factor Analysis

Indicators	Loading	Cronbach's α	AVE
Product Innovation		.892	.789
New Specification	.584		
Updated Features	.576		
New Product Design	.602		
Fewer Defects	.569		
Different Products	.547		
New Source Raw Material	.632		
New Kinds of Raw Material	.588		
Additional Raw Material	.689		
Another Supplier	.615		
Modified Products	.539		
Customer Needs	.629		
Distinctive Features	.652		
Distinctive Specifications	.746		
Process Innovation		.875	.712
Successful in the Marketplace	.730		
Attracted New Customers	.699		
Increases Sales Volume	.712		
Relationships with Suppliers	.635		
Customers' Expectation	.733		
New Production Activities	.691		
New Production Techniques	.678		
New Production Process	.677		
New Production Method	.548		
Required Time	.726		
Modern Manufacturing Plants	.637		
Fast Manufacturing Plants	.692		
Fulfil Customers' Orders	.707		
Records of Time	.570		
Records of the Quantity	.589		
Records of Raw Material	.674		
Records of Cost	.686		
Records of Labour Force	.651		
Updated Manufacturing Methods	.643		
Improve Manufacturing Plants	.663		
Change Manufacturing Approaches	.746		
Marketing Innovation		.826	.831
Change Technology	.692		
New Packaging Design	.674		
Packaging Quality	.735		
Packaging Cost	.680		

Packaging Size	.669		
Increased Number of Customer	.609		
Increased Sales Volume	.669		
Increased Production	.676		
Customers' Needs	.626		
New Promotion Technique	.719		
Aware of Product	.655		
Increased Sales	.678		
Increased Market Share	.758		
New Sales Method	.673		
Additional Sales Opportunities	.775		
Sales Target	.756		
Satisfy Customer	.685		
Business Performance		.781	.769
Outperform Competitors	.571		
Quality Products	.636		
Number of Customers	.544		
Market Share	.691		
Maintain Business Operations	.552		
Adapt to Changing Environment	.578		
Demonstrate Progress	.675		
Increase Business Operations	.668		
Achieved Profit Objectives	.726		
Achieved Sales Objectives	.692		
Achieved Market Share	.602		
Well Perceived Image	.604		
Increase Number of Customers	.608		
Increases the Revenue per Product	.694		
Increases Number of Sold Products	.653		
Increases Number of Products	.669		
Change in Business Strategy	.707		
Change in Operations Techniques	.714		
Periodically Review of Product	.663		
Change in Marketing Techniques	.730		
Plan a Response to Changes	.703		
Respond to Significant Changes	.666		
Corrective Action	.673		

Adopt to Organizational .622

Changes

Eigenvalues = 2.664

Variance (%) = 4.131

Cumulative variance (%):

66.2

Kaiser-Meyer-Olkin Measure of Sampling Adequacy .746

Approx. Chi-square 7331.371

Bartlett's Test of Sphericity df 721

Sig. .000



Managing Editor
African Journal of Accounting and Social Science Studies (AJASSS)
Tanzania Institute of Accountancy
P. O. Box 9522,
Dar es Salaam
Tanzania
E-mail: ajasss@tia.ac.tz