

**INFLUENCE OF INFORMATION TECHNOLOGY INFRASTRUCTURE AND
GOVERNMENT POLICY ON THE RELATIONSHIP BETWEEN SUPPLY CHAIN
PROCESS INTEGRATION CAPABILITIES AND SUPPLY CHAIN PERFORMANCE
OF PUBLIC UNIVERSITIES IN KENYA**

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the Degree of Doctor of Philosophy
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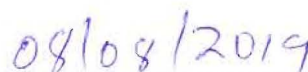
(AUGUST, 2019)

DECLARATION

I declare that this PhD thesis is my original work, and as far as I am aware, it has not been presented for the award of a degree in any other university.



Signature



Date


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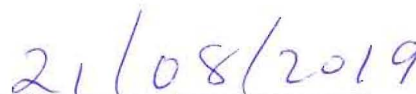
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PUBLICATIONS

The following publications were extracted as a result of the research described in this thesis and published in peer reviewed academic journals:

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DEDICATION

This Thesis is dedicated to my late mother, Mary Nasike Wasike who gave me all the tools I needed to complete this journey. It does not matter who you are, or where you come from, hard work and dedication to a job well done can take you anywhere you want to go. Thank you for sharing these life lessons with me, and I hope by completing this process, I can share by example the same lessons with my own children, Victor and Bryan and my grandchildren Dwayne and Caleb.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANCOVA	:	Analysis of Covariance
ANOVA	:	Analysis of Variance
APS	:	Advanced Planning Systems
CFA	:	Confirmatory Factor Analysis
CI	:	Customer Integration
CIS	:	Computer-based Information System
CNT	:	Collaborative Network Theory
CSCMP	:	Council of supply chain management professionals
CPFR	:	Collaborative Planning, Forecasting, and Replenishment
CRM	:	Customer Relationship Management
CUE	:	Commission for University Education
ECR	:	Efficient Consumer Response
EDI	:	Electronic Data Interchange
ERP	:	Enterprise Resource Planning
GoK	:	Government of Kenya
GDP	:	Gross Domestic Product
GPA	:	Government Procurement Agreements
FOSS	:	Free and Open Source Software
ICT	:	Information and Communications Technology
IFMIS	:	Integrated Financial Management Information System
IT	:	Information Technology
JIT	:	Just-in-Time
JITD	:	Just-in-Time Distribution
KTDA	:	Kenya Tea Development Authority
KI	:	Kaiser Criterion
MIS	:	Management Information Systems
MNCs	:	Multinational Companies
NACOSTI	:	National Commission for Science, Technology and Innovation
OTIF	:	On-Time In-Full
PE	:	Procuring Entities

PCA	:	Principal Component Analysis
PMS	:	Performance Measurement Systems
P2P	:	Procure to Pay
PPAD	:	Public Procurement and Assets Disposal
PPPs	:	Public Private Partnerships
PPOA	:	Public Procurement Oversight Authority
PPAB	:	Public Procurement Advisory Board
PPAR	:	Public Procurement Administrative and Review Board
PPDA	:	Public Procurement Disposal Act
PPDR	:	Public Procurement Disposal Regulations
PWHC	:	Price Water House Coopers
RFID	:	Radio Frequency Identification
RBV	:	Resource Based View
RDT	:	Resource Dependence Theory
SCI	:	Supply Chain Integration
SCM	:	Supply Chain Management
SCPIC	:	Supply Chain Process Integration Capabilities
SD	:	System Dynamics
SI	:	Supplier Integration
SPSS	:	Statistical package for social sciences
STI	:	Science, Technology and Innovation
VIF	:	Variance Inflation Factors
VMI	:	Vendor Managed Inventory
VRIN	:	Valuable, Rare, Inimitable and Non-substitutable
WB	:	World Bank
WTO	:	World Trade Organization
ZRESID	:	Standardized Residuals
ZPRED	:	Standardized Predicted

DEFINITION OF OPERATIONAL TERMS

Government Policy: Refers to laws, rules and regulations that are put in place to govern the process of public procurement and assets disposal by public entities for efficient functioning. In Kenya the Public Procurement and Assets Disposal Act 2015 was enacted by Parliament to give effect to Article 227 of the Constitution of Kenya 2010. This study operationalized government policy as procurement law and procurement procedures.

Information Technology Infrastructure: constitutes the organization's enabling base of shared information technology capabilities that provide a reliable foundation for evolving business information systems and services. Information technology infrastructure refers to sets of physical information technology assets, intangible information technology skills including computer hardware, communication networks, database, business applications, and information technology human resource. Information technology infrastructure comprises a group of shared, tangible IT resources that enable present and future business applications (Turek, 2013). This study operationalized information technology infrastructure as internal infrastructure and external infrastructure.

Supply Chain Performance of Public Universities in Kenya: The ability of the public universities' supply chains to deliver the right product or service to the correct location at the appropriate time and at the lowest cost of logistics. This study operationalized supply chain performance of thirty one (31) public universities in Kenya as internal operational dimensions (time, cost leadership, product quality and productivity, and customer service dimensions (quality of service, flexibility and delivery reliability).

Supply Chain Process Integration Capabilities (SCPIC): Is the structuring of activities and processes to assist organizations develop, allocate and align resources to achieve distinctive capabilities to generate better performance and competitive advantage. This study operationalized SCPIC as information flow integration, physical flow integration and financial flow integration.

ABSTRACT

The overall aim of the study was to assess the influence of Information Technology Infrastructure (ITI) and government policy on the relationship between supply chain process integration capabilities (SCPIC) and supply chain performance of public universities in Kenya. Specific objectives of the study were: to determine the influence of supply chain process integration capabilities on supply chain performance of public universities in Kenya; establish the influence of SCPIC on ITI of public universities in Kenya; assess the influence of ITI on supply chain performance of public universities in Kenya; establish the mediating effect of ITI on the relationship between supply chain process integration capabilities and supply chain performance of public universities in Kenya; determine the moderating effect of government policy in the relationship between supply chain process integration capabilities and supply chain performance of public universities in Kenya, and to establish the joint effect of SCPIC, ITI and government policy on supply chain performance of public universities in Kenya. The study was underpinned on four theories namely: Resource Based View, Collaborative Network Theory, Agency Theory and Resource Dependence Theory. This study was guided by null hypotheses: H₀₁: SCPIC have no significant influence on SC performance of public universities in Kenya, H₀₂: SCPIC have no significant influence on ITI in public universities in Kenya, H₀₃: ITI has no significant influence on SC performance of public universities in Kenya, H₀₄: ITI has no significant mediating effect on the relationship between SCPIC and SC performance of public universities in Kenya, H₀₅: Government policy has no significant moderating influence on the relationship between SCPIC and performance of public universities in Kenya; H₀₆: The joint effect of SCPIC, ITI and GP on supply chain performance of public universities in Kenya is not different from their individual effects. The study employed cross-sectional survey design. The unit of analysis for the study was public universities. The study was a census. Primary data was collected from 31 public universities using structured questionnaire administered to the heads of procurement and ICT departments. A pilot study was conducted. Validity and reliability tests were done using Cronbach Alpha coefficient. To describe profiles of the universities and research variables, means, standard deviations and coefficient of variations were used. Pearson's correlation was used to examine relationships between the variables. To test the hypotheses, linear regression, multiple regression and hierarchical regression were used. The findings of the study indicated that information technology infrastructure mediated the relationship. Government policy moderated the relationship between supply chain process integration capabilities and supply chain performance of public universities in Kenya. The results demonstrated that the joint effect of SCPIC, ITI and government policy on supply chain performance was greater than the effect of individual variables on supply chain performance of public universities in Kenya. By empirically examining the integrated model interconnecting variables, the study has contributed to building of scientific and professional knowledge to policy makers in Kenya and beyond. The study has provided scholars with new insights into the role of government policy as a moderating variable and information technology infrastructure as a mediating variable in the linkage between supply chain process integration and supply chain performance. The study concluded that SCPIC, ITI and government policy enhance supply chain performance of public universities. The research recommends replication of the study in different service sectors and national contexts to enhance understanding of the relationship between SCPIC and supply chain performances.