

**EFFECT OF CIRCULAR SUPPLY CHAIN PRACTICES ON THE  
PERFORMANCE OF MANUFACTURING FIRMS IN KENYA**

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**2024**

## DECLARATION

This thesis is my original work and has not been presented for award of a degree in any other university.

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## **DEDICATION**

This thesis is dedicated to my beloved Wife Khawla Said, parents and siblings who have shown the spirit of encouragement towards this huge academic task and achievement: am looking forward to honoring your spirit to this course of life-long change.

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## TABLE OF CONTENTS

<b><u>DECLARATION</u></b> .....	<b>ii</b>
<b><u>DEDICATION</u></b> .....	<b>iii</b>
<b><u>ACKNOWLEDGEMENT</u></b> .....	<b>iv</b>
<b><u>LIST OF TABLES</u></b> .....	<b>xii</b>
<b><u>LIST OF FIGURES</u></b> .....	<b>xiv</b>
<b><u>LIST OF APPENDIXES</u></b> .....	Error! Bookmark not defined.
<b><u>ABBREVIATION AND ACRONYMS</u></b> .....	<b>xv</b>
<b><u>DEFINITION OF TERMS</u></b> .....	<b>xvi</b>
<b><u>ABSTRACT</u></b> .....	<b>xviii</b>
<b><u>CHAPTER ONE</u></b> .....	<b>1</b>
<b><u>INTRODUCTION</u></b> .....	<b>1</b>
<b><u>1.1 Background Information</u></b> .....	<b>1</b>
<b><u>1.1.1 Global Perspective of Circular Supply Chain</u></b> .....	<b>1</b>
<b><u>1.1.2 Regional Perspective of Circular Supply Chain</u></b> .....	<b>2</b>
<b><u>1.1.3 Local Perspective of Circular Supply Chain</u></b> .....	<b>3</b>
<b><u>1.1.4 The Profile of Manufacturing Firms in Kenya</u></b> .....	<b>4</b>
<b><u>1.2 Problem Statement</u></b> .....	<b>5</b>
<b><u>1.3 Study Objectives</u></b> .....	<b>7</b>
<b><u>1.3.1 General Objective</u></b> .....	<b>7</b>
<b><u>1.3.2 Specific Objectives</u></b> .....	<b>8</b>
<b><u>1.4 Hypotheses of the Study</u></b> .....	<b>8</b>
<b><u>1.5 Significance of the Study</u></b> .....	<b>9</b>
<b><u>1.5.1 Government and other Policy Regulators</u></b> .....	<b>9</b>
<b><u>1.5.2 Manufacturing Firms</u></b> .....	<b>9</b>
<b><u>1.5.3 Local Community</u></b> .....	<b>9</b>
<b><u>1.5.4 Future Researchers and Institutions of Higher Learning</u></b> .....	<b>10</b>
<b><u>1.6 Scope of the Study</u></b> .....	<b>10</b>
<b><u>1.7 Limitations of the Study</u></b> .....	<b>10</b>

<b><u>CHAPTER TWO</u></b> .....	<b>12</b>
<b><u>LITERATURE REVIEW</u></b> .....	<b>12</b>
<b><u>2.1 Introduction</u></b> .....	<b>12</b>
<b><u>2.2 Theoretical Framework</u></b> .....	<b>12</b>
<u>2.2.1 Natural Resource Based View (NRBV)</u> .....	12
<u>2.2.2 Resource Dependency Theory (RDT)</u> .....	14
<u>2.2.3 Industry 4.0 Model</u> .....	16
<u>2.2.4 Industrial Symbiosis (IS)</u> .....	18
<u>2.2.5 Institutional Theory</u> .....	19
<u>2.2.6 Contingency Theory</u> .....	21
<b><u>2.3 Conceptual Framework</u></b> .....	<b>23</b>
<b><u>2.4 Review of Variables</u></b> .....	<b>25</b>
<u>2.4.1 Circular Product Design and Organization Performance</u> .....	25
<u>2.4.2 Circular Procurement and Organization Performance</u> .....	28
<u>2.4.3 Circular Manufacturing and Organization Performance</u> .....	31
<u>2.4.4 Circular Logistics and Organization Performance</u> .....	34
<u>2.4.5 Policy Framework and Organization Performance</u> .....	37
<u>2.4.6 Organizational Performance</u> .....	39
<b><u>2.5 Empirical Review</u></b> .....	<b>41</b>
<b><u>2.6 Critique of Relevant Existing Literature</u></b> .....	<b>42</b>
<b><u>2.7 Research Gaps</u></b> .....	<b>43</b>
<b><u>2.8 Summary</u></b> .....	<b>44</b>
<b><u>CHAPTER THREE</u></b> .....	<b>46</b>
<b><u>RESEARCH METHODOLOGY</u></b> .....	<b>46</b>
<b><u>3.1 Introduction</u></b> .....	<b>46</b>
<b><u>3.2 Research Design</u></b> .....	<b>46</b>
<u>3.2.1 Research Philosophy</u> .....	46
<b><u>3.3 Target Population</u></b> .....	<b>47</b>
<b><u>3.4 Sampling Frame</u></b> .....	<b>48</b>

<u>3.5 Sampling and Sample Size</u> .....	49
<u>3.5.1 Sampling Technique</u> .....	49
<u>3.5.2 Sample size</u> .....	49
<u>3.6 Primary Data Collection</u> .....	50
<u>3.7 Data Collection Procedure</u> .....	51
<u>3.8 Pilot Study</u> .....	52
<u>3.9 Data Analysis and Presentation</u> .....	52
<u>3.9.1 Factor Analysis</u> .....	53
<u>3.9.2 Correlation Analysis</u> .....	53
<u>3.9.3 Multiple Regression Analysis</u> .....	54
<u>3.9.4 Test for the Moderation Variable</u> .....	54
<u>3.9.5 Test for OLS</u> .....	55
<u>3.9.6 Qualitative Data Analysis</u> .....	56
<u>3.9.7 Hypothesis Testing</u> .....	56
<u>3.9.8 Measurement of Study Variables</u> .....	58
<u>3.10 Ethical Consideration</u> .....	59
<b><u>CHAPTER FOUR</u></b> .....	<b>60</b>
<b><u>RESEARCH FINDINGS AND DISCUSSION</u></b> .....	<b>60</b>
<u>4.1 Introduction</u> .....	60
<u>4.2 Pilot Results</u> .....	60
<u>4.2.1 Reliability Test</u> .....	60
<u>4.2.2 Validity</u> .....	61
<u>4.2.3 Factor Analysis for Circular Supply Chain Practices</u> .....	62
<u>4.3. Diagnostic Tests</u> .....	62
<u>4.3.1. Normality</u> .....	63
<u>4.3.2. Homoscedasticity</u> .....	64
<u>4.3.3. Auto Correlation</u> .....	66
<u>4.3.4. Multi Collinearity</u> .....	67
<u>4.4 Response Rate</u> .....	68

<u>4.5. Factor Analysis</u> .....	68
<u>4.5.1. Factor Analysis of Circular Design</u> .....	69
<u>4.5.1.1 Sample Adequacy Results on Circular Design</u> .....	69
<u>4.5.1.2 Circular Design Total Variance Explained</u> .....	69
<u>4.5.1.3 Descriptive Results of Circular Design</u> .....	70
<u>4.5.2. Factor Analysis of Circular Procurement</u> .....	71
<u>4.5.2.1 Sample Adequacy Results on Circular procurement</u> .....	71
<u>4.5.2.2 Circular Procurement Total Variance Explained</u> .....	72
<u>4.5.2.3 Descriptive Results of Circular Procurement</u> .....	72
<u>4.5.3. Factor Analysis Circular Manufacturing</u> .....	73
<u>4.5.3.1 Sample Adequacy Results on Circular Manufacturing</u> .....	73
<u>4.5.3.2 Circular Manufacturing Total Variance Explained</u> .....	74
<u>4.5.3.3 Circular Manufacturing Rotation Component Matrix Results</u> .....	74
<u>4.5.3.4 Descriptive Results of Circular Manufacturing</u> .....	75
<u>4.5.4. Factor Analysis of Circular Logistics</u> .....	76
<u>4.5.4.1 Sample Adequacy Results on Circular Logistics</u> .....	76
<u>4.5.4.2 Circular Logistics Total Variance Explained</u> .....	77
<u>4.5.4.3 Circular Logistics Rotation Component Matrix Results</u> .....	78
<u>4.5.4.4 Descriptive Results of Circular Logistics</u> .....	79
<u>4.5.5. Factor Analysis Policy Framework</u> .....	79
<u>4.5.5.1 Sample Adequacy Results on Policy Framework</u> .....	79
<u>4.5.5.2 Policy Framework Total Variance Explained</u> .....	80
<u>4.5.5.3 Descriptive Results of Policy Framework</u> .....	81
<u>4.5.6. Factor Analysis Organizational performance</u> .....	81
<u>4.5.6.1 Sample Adequacy Results on Organizational Performance</u> .....	81
<u>4.5.6.2 Organizational Performance Total Variance Explained</u> .....	82
<u>4.5.6.3 Organizational Performance Rotation Component Matrix Results</u> .....	83
<u>4.5.6.4 Descriptive Results of Organizational Performance</u> .....	84
<u>4.6. Demographic Information</u> .....	84



<u>4.6.1 Level of Education</u> .....	84
<u>4.6.2 Age Distribution</u> .....	85
<u>4.6.3 Length of Service</u> .....	85
<u>4.6.4 Sector of the Organization</u> .....	86
<u>4.7. Descriptive Statistics</u> .....	87
<u>4.7.1. Circular Design</u> .....	87
<u>4.7.2. Circular Procurement</u> .....	89
<u>4.7.3. Circular Manufacturing</u> .....	91
<u>4.7.4. Circular Logistics</u> .....	93
<u>4.7.5. Policy Framework</u> .....	95
<u>4.7.6. Organizational Performance</u> .....	96
<u>4.8. Correlation Analysis</u> .....	98
<u>4.9. Regression Analysis</u> .....	100
<u>4.10. Multiple Linear Regression Results</u> .....	100
<u>4.11. Hypothesis Testing</u> .....	103
<u>4.11.1. Test of Hypothesis One</u> .....	103
<u>4.11.2. Test of Hypothesis Two</u> .....	104
<u>4.11.3. Test of Hypothesis Three</u> .....	104
<u>4.11.4. Test of Hypothesis Four</u> .....	104
<u>4.11.5. Test of Hypothesis Five</u> .....	105
<u>4.12. Model Optimization</u> .....	105
<u>4.13 Optimal Conceptual Framework</u> .....	107
<u>4.14 Qualitative Analysis</u> .....	108
<u>4.14.1 Circular Product Design</u> .....	108
<u>4.14.2 Circular Procurement</u> .....	109
<u>4.14.3 Circular Manufacturing</u> .....	110
<u>4.14.4 Circular Logistics</u> .....	110
<u>4.14.5 Policy Framework</u> .....	111
<u>4.14.6 Organization Performance</u> .....	112

<u>4.15 Discussion of Key Findings</u> .....	112
<u>4.15.1 Effect of Circular Product Design on the Performance of Manufacturing Firms in Kenya</u> .....	113
<u>4.15.2 Effect of Circular Procurement on the Performance of Manufacturing Firms in Kenya</u> .....	114
<u>4.15.3 Effect of Circular Manufacturing on the Performance of Manufacturing Firms on Kenya</u> .....	115
<u>4.15.4 Effect of Circular Logistics on the Performance of Manufacturing Firms in Kenya</u> .....	116
<b><u>CHAPTER FIVE</u></b> .....	<b>117</b>
<b><u>SUMMARY, CONCLUSIONS AND RECOMMENDATIONS</u></b> .....	<b>117</b>
<u>5.1 Introduction</u> .....	117
<u>5.2 Summary of Findings</u> .....	117
<u>5.2.1 Circular Product Design</u> .....	117
<u>5.2.2 Circular Procurement</u> .....	118
<u>5.2.3 Circular Manufacturing</u> .....	118
<u>5.2.4 Circular Logistics</u> .....	119
<u>5.2.5 Moderating Effect of Policy Framework</u> .....	120
<u>5.3 Conclusions</u> .....	120
<u>5.3.1 Circular Product design</u> .....	120
<u>5.3.2 Circular Procurement</u> .....	121
<u>5.3.3 Circular Manufacturing</u> .....	121
<u>5.3.4 Circular Logistics</u> .....	122
<u>5.3.5 Moderating Effect of policy framework</u> .....	123
<u>5.4 Recommendations</u> .....	123
<u>5.4.1 Circular Product design</u> .....	123
<u>5.4.2 Circular Procurement</u> .....	124
<u>5.4.3 Circular Manufacturing</u> .....	126
<u>5.4.4 Circular Logistics</u> .....	127
<u>5.5 Contributions of the Research</u> .....	129

<u>5.6 Areas for Further Research</u> .....	130
<b><u>REFERENCES</u></b> .....	<b>132</b>
<b><u>APPENDICES</u></b> .....	<b>142</b>
<u>Appendix I: Letter of Introduction</u> .....	142
<u>Appendix II: Questionnaire</u> .....	143
<u>Appendix III: NACOSTI Research License</u> .....	152
<u>Appendix IV: ERC Approval</u> .....	153
<u>Appendix V: List of Manufacturing Firms</u> .....	154

## LIST OF TABLES

<u>Table 3.1 Target Population</u> .....	48
<u>Table 3.2 Sample Size</u> .....	50
<u>Table 3.3 Hypothesis Testing</u> .....	57
<u>Table 3.4 Measurement of Variables</u> .....	58
<u>Table 4.1 Reliability Test</u> .....	61
<u>Table 4.2 Factor Analysis Table</u> .....	62
<u>Table 4.3 Durbin-Watson Test</u> .....	66
<u>Table 4.4 VIF Test</u> .....	67
<u>Table 4.5 Response Rate</u> .....	68
<u>Table 4.6 KMO and Bartlett's Test</u> .....	69
<u>Table 4.7 Total Variance Explained Under Circular Design</u> .....	70
<u>Table 4.8 Descriptive Results of Circular Design</u> .....	70
<u>Table 4.9 KMO and Bartlett's Test</u> .....	71
<u>Table 4.10 Total Variance Explained Under Circular Procurement</u> .....	72
<u>Table 4.11 Descriptive Results of Circular Procurement</u> .....	72
<u>Table 4.12 KMO and Bartlett's Test</u> .....	73
<u>Table 4.13 Total Variance Explained Under Circular Manufacturing</u> .....	74
<u>Table 4.14 Rotated Component Matrix</u> .....	75
<u>Table 4.15 Descriptive Results of Circular Manufacturing</u> .....	76
<u>Table 4.16 KMO and Bartlett's Test</u> .....	77
<u>Table 4.17 Total Variance Explained Under Circular Logistics</u> .....	77
<u>Table 4.18 Rotated Component Matrix</u> .....	78
<u>Table 4.19 Descriptive Results of Circular Manufacturing</u> .....	79
<u>Table 4.20 KMO and Bartlett's Test</u> .....	80
<u>Table 4.21 Total variance Explained under Policy Framework</u> .....	80
<u>Table 4.22 Descriptive Results of Policy Framework</u> .....	81
<u>Table 4.23 KMO and Bartlett's Test</u> .....	82
<u>Table 4.24 Total Variance Explained Under Organizational Performance</u> .....	82

<u>Table 4.25 Rotated Component Matrix</u> .....	83
<u>Table 4.26 Descriptive Results of Circular Manufacturing</u> .....	84
<u>Table 4.27 Level of Education</u> .....	84
<u>Table 4.28 Age Distribution</u> .....	85
<u>Table 4.29 Length of Service</u> .....	85
<u>Table 4.30 Sector of the Organization</u> .....	86
<u>Table 4.31 Descriptive results of Circular Design</u> .....	87
<u>Table 4.32 Descriptive Results of Circular Procurement</u> .....	90
<u>Table 4.33 Descriptive results of Circular Manufacturing</u> .....	92
<u>Table 4.34 Descriptive results of Circular Logistics</u> .....	94
<u>Table 4.35 Descriptive results of Policy Framework</u> .....	95
<u>Table 4.36 Descriptive results of Organizational Performance</u> .....	97
<u>Table 4.37 Correlation Matrix Table</u> .....	99
<u>Table 4.38 Model Summary</u> .....	101
<u>Table 4.39 ANOVA Table</u> .....	101
<u>Table 4.40 Regression Coefficients</u> .....	102
<u>Table 4.41 Summary of Research Hypotheses Five</u> .....	105
<u>Table 4.42 Model Optimization</u> .....	106

## LIST OF FIGURES

<u>Figure 2.1 Conceptual Framework</u> .....	25
<u>Figure 2.2. Average CO2 Emissions</u> .....	36
<u>Figure 4. 1 Normal P-P Plot</u> .....	63
<u>Figure 4. 2 Scatter Plot</u> .....	65
<u>Figure 4.3 Optimal Conceptual Framework</u> .....	108

## **ABBREVIATION AND ACRONYMS**

<b>CoK</b>	Constitution of Kenya
<b>CSCM</b>	Circular Supply Chain Model
<b>IT</b>	Information Technology
<b>GSCM</b>	Green Supply Chain Management
<b>KEPSA</b>	Kenya Private Alliance
<b>KMA</b>	Kenya Association of Manufacturers
<b>NAMAS</b>	Nationally Appropriate Mitigation Actions
<b>NRBV</b>	Natural Resource Based View
<b>NEEMA</b>	Natural Environmental Management Authority
<b>MCI</b>	Materials Circularity Indicator
<b>OECD</b>	Organization for Economic, Co-operation and Development
<b>PETCO</b>	Polythene Terephthalate
<b>PRO</b>	Producer Responsibility Organization
<b>R&amp;D</b>	Research and Development
<b>SCM</b>	Supply Chain Management
<b>SDG</b>	Sustainable Development Goals
<b>TLB</b>	Triple Bottom Line
<b>UN</b>	United Nations
<b>UNEP</b>	United Nations Environmental Program
<b>WEEE</b>	West from Electrical and Electronic Equipment

## DEFINITION OF TERMS

<b>Circular Logistics</b>	Managing the flow of products (push and pull) and information, in an ecologically friendly manner, with the goal of producing an additional value for customers and satisfying their requirements (Masi, Day & Godsell, 2017).
<b>Circular Supply Chain</b>	This is a configuration and coordination of an end-to-end acquisition and disposal of materials in an organization (Akinade & Oyedele, 2019).
<b>Circular Product Design</b>	Involves incorporating Eco design on the whole product lifecycle, encouraging dematerialization, environmental friendliness of products (Brezet & Hemel, 2017)
<b>Circular Procurement</b>	Circular procurement entails buying goods or services in a manner that does not cause detriment to future requirements (Govindan, Khodaverdi & Jafarian, 2018).
<b>Circular manufacturing</b>	Manufacturing of products in a sustainable way, as well as ensuring sustainable manufacturing processes and systems for all products (Sung, Doo-Man & Won-Shik Chu 2020).
<b>Industrial Symbiosis</b>	This is the physical exchange of production resources such as energy, raw materials, and byproducts between industrial actors in the supply chain (Dulebenets & Diploid, 2018).
<b>Logistical Structure</b>	This is a systematic arrangement of partners in the supply chain for forward and backward distributional strategy of products to consumers and empties to the manufacturing firm through a coordinated process (Nie, 2019).
<b>Policy Framework</b>	This is a document that sets out procedures in following an intended and approved methodology of operations (Zeng, Chen, Xiao & Zhou, 2017).



<b>Research Philosophies</b>	This is a scientific realization that the World exists and can be studied as it is (Crosswell & Clark, 2017).
<b>Re-cycle</b>	This is the process of reducing resource decomposition by transformational process with the aim of reusing the components of materials (Zhoga & Pearce, 2018).
<b>Re-manufacture</b>	This is the process of reintroducing used products into a processing unit in accordance with their original specifications and quality standards (Fan, Qiao & Fang, 2017).
<b>Re-use</b>	This is a system of using products directly at the end of its life cycle (Weetman, 2017).
<b>Sustainability Pillars</b>	These are economic, environmental and social manufacturing resources (Stewart & Niero, 2018).

## ABSTRACT

Over the decades, manufacturing organizations have relied on a linear extraction approach which has enlightened the threat of resources depletion. This has triggered interest from different sectors such as researchers, industrial experts and policy makers on how to transition into a more efficient and un-destructive production approach for a sustainable and circular economic growth. The inception of circular supply chain is vested on the business structural model of producing products and flow of materials along the supply chain members back and forth with well-integrated communication. The inadequacy of literature on circular supply chain in terms of research and the importance of reducing the demand for virgin raw materials provides the gap for this study. The main objective of this study was to investigate the effect of circular supply chain practices on performance of Kenyan manufacturing firms. Specifically, the study sought to determine whether Circular product Design, Circular Procurement, Circular manufacturing and Circular Logistics affect the performance of manufacturing firms in Kenya. The study also sought to determine the moderating effect of policy framework on relationship between circular supply chain practices and organizational performance. Theories used in this novel study includes Natural Resourced Based view, Resource Dependency, Industry 4.0 Model, Industrial Symbiosis and Institutional theory. Data was collected by the use of a questionnaire in the Likert Type Scale format. The target population included all the manufacturing firms registered by KAM. Stratified random sampling was used to ensure a representative sample from each industry, and the appropriate sample size was calculated using Yamane's formula. The hypothesis was analyzed for acceptance or rejection by determining the P-value. Data was analyzed by use of SPSS (V.20) while presentations was done by tables and graphs. The study found out that circular product design, circular procurement, circular manufacturing and circular logistics has significant effect on the performance of manufacturing firms in Kenya. On the policy framework, the study found out that it has a significant only on circular manufacturing as it remains insignificant on other variables. The study recommended further research to consider specific barriers and challenges faced by manufacturing firms in adopting circular supply chain practices in the Kenyan context. Moreover, further research could be carried out to explore financial implications of implementing circular supply chain practices, impact of circular supply chain practices on different dimensions of sustainability, longitudinal studies can be conducted to assess the long-term effects of circular supply chain practices on organization performance and comparative studies across different countries and regions to provide insights into the contextual variations and best practices in implementing circular supply chain practices.