



**SUDAN UNIVERSITY OF SCIENCE AND
TECHNOLOGY**
COLLEGE OF GRADUATE STUDIES



**Development of a Framework for Enhancing the Performance of
Small-Scale construction Firms in Nigeria**

تطوير نموذج (إطار) لتحسين الأداء في شركات البناء الصغيرة في نيجيريا

**A thesis submitted in fulfillment of the requirement for the award of
Doctor of Philosophy Degree (PhD) in Civil Engineering
(Construction Management)**

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February 2021

EXAMINERS APPROVAL

This thesis entitled “The Development of a Framework for enhancing the Performance of Small-Scale Construction Firms in Nigeria” by Ali Ibrahim Faki meets the regulations governing the award of the degree of Doctor of Philosophy of Sudan University of Science and Technology (SUST), and is approved for its contribution to knowledge and literary presentation.

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DECLARATION

I declare that the work in the thesis entitled “The Development of a Framework for enhancing the Performance of Small-Scale Construction Firms in Nigeria” was carried by me in the College of Engineering, School of Civil Engineering under the Supervision of Prof. Awad Saad Hassan. The information derived from the literature was duly acknowledged in the text and a list of references provided. No part of this thesis was previously presented for another degree or diploma programme at any university.

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CERTIFICATION

This thesis entitled ‘**THE DEVELOPMENT OF A FRAMEWORK FOR ENHANCING THE PERFORMANCE OF SMALL-SCALE CONSTRUCTION FIRMS IN NIGERIA**’ by Ali Ibrahim Faki meets the regulations governing the award of the degree of Doctor of Philosophy (PhD) of Sudan University of Science and Technology (SUST) and is approved for its contribution to knowledge and literary presentation.

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ABSTRACT

The construction industry in developing countries is under tremendous pressure to improve its performance and the quality of its products and services. The small-scale construction firms dominate the construction industry and governments had globally recognized micro and small-scale enterprises as an instrument of economic growth and development. Past studies by various researchers have recommended a number of performance improvement strategies. However each country has peculiar problems, priorities and at different stages of infrastructure and national development. Considering Nigeria operating environment, this study focuses on examining the challenges being faced by the small-scale construction firms and measures to be implemented in order to improve performance. The study adopted a mixed methodology involving focus group discussion and questionnaire survey of 125 small-scale construction firms undertaking the federal government mass housing projects in the seven North-West states of Nigeria. The data was analyzed using descriptive statistics, percentage contribution, relative importance index and principal component analysis (PCA). The study identified five (5) composite factors affecting the performance of small-scale construction firms such as; company internal constraints, financial problems and construction client related factors. The study in addition, identified fourteen (14) measures comprising six (6) internal measures and eight (8) external measures that are crucial in improving performance if implemented by the construction firms and other stakeholders. Furthermore, the study using relative importance index and percentage contribution established the common methods of performance measurements and performance indicators. The ten (10) most important performance indicators for small-scale construction firms include increase in productivity, more customer satisfaction, increase in company turnover; increase in company profits; quality price and awards, increase in number of employees, increased use of plants and equipment and getting repeat business opportunities from clients. On these bases, performance improvement framework was developed with levels of implementation, to guide towards improving the performance and development of small-scale construction firms.

مستخلص

تتعرض صناعة التشييد في البلدان النامية لضغوط هائلة لتحسين أدائها وجودة منتجاتها وخدماتها. تهيمن شركات البناء الصغيرة على صناعة البناء، واعترفت الحكومات على مستوى العالم بالمشاريع الصغيرة والصغيرة كأداة للنمو الاقتصادي والتنمية. أوصت الدراسات السابقة من قبل الباحثين المختلفين بعدد من استراتيجيات تحسين الأداء. ومع ذلك، فلكل بلد مشكلات وأولويات ومراحل مختلفة من البنية التحتية والتنمية الوطنية. وبالنظر إلى بيئة التشغيل في نيجيريا، تركز هذه الدراسة على دراسة التحديات التي تواجهها شركات البناء الصغيرة والتدابير التي يتعين تنفيذها من أجل تحسين الأداء. اعتمدت الدراسة منهجية مختلطة تضمنت مناقشة جماعية مركزة ومسح استبياني لـ 125 شركة إنشاءات صغيرة الحجم قامت بمشاريع إسكان جماعية تابعة للحكومة الاتحادية في الولايات الشمالية الغربية لنيجيريا. تم تحليل البيانات باستخدام الإحصاء الوصفي، النسبة المئوية للمشاركة، مؤشر الأهمية النسبية وتحليل المكون الأساسي (PCA) حددت الدراسة خمسة (5) عوامل مركبة تؤثر على أداء شركات البناء الصغيرة مثل: القيود الداخلية للشركة، والمشاكل المالية والعوامل ذات الصلة بعمل البناء. كما حددت الدراسة أربعة عشر (14) مقاييس تشمل 6 قياسات داخلية و8 تدابير خارجية لها دور حاسم في تحسين الأداء إذا نفذت من قبل شركات البناء وأصحاب المصلحة الآخرين. وعلاوة على ذلك، حددت الدراسة التي استخدمت مؤشر الأهمية النسبية ونسبتها المئوية للطرق الشائعة لقياس الأداء وعشرة (10) مؤشرات أداء هامة لشركات البناء الصغيرة من بينها؛ زيادة في الإنتاجية وزيادة رضا العملاء؛ زيادة في معدل دوران الشركة؛ الزيادة في أرباح الشركة، سعر الجودة والحوافز؛ زيادة عدد الموظفين، وزيادة استخدام الآليات والمعدات والحصول على فرص الأعمال المتكررة من العملاء. على هذا الأساس تم تطوير إطار تحسين الأداء أيضاً مع مستويات التنفيذ وذلك لتوجيه شركات البناء الصغيرة نحو تحسين الأداء والتطوير.

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TABLE OF CONTENTS

Title Page.....	i
Examiners Approval.....	ii
Declaration by Student.....	iii
Certification.....	iv
Copy Rights.....	v
Acknowledgement.....	vi
Abstract English.....	vii
Abstract Arabic.....	viii
List of Publications.....	xvii
Table of Contents.....	ix
List of Appendices.....	xvii
List of Tables.....	xiii
List of Figures.....	xiv
List of Symbols/Abbreviations.....	xv
1.0 CHAPTER 1: Introduction.....	1
1.1 Background to the Study.....	1
1.2 Statement of Problems.....	4
1.3 Research Gap.....	6
1.4 Justification of the Study.....	8
1.5 Research Questions.....	10
1.6 Aim and Objectives.....	10
1.7 Scope of the Study.....	11
1.8 Overview of Research Conceptual Framework.....	11
1.9 Thesis Outlines.....	12
2.0 CHAPTER 2: Nigeria its Economy and Construction Industry.....	13
2.1 Introduction.....	13
2.2 The History, Geography and Climate of Nigeria.....	14
2.3 The System of Government, Laws and Politics of Nigeria.....	16
2.4 The Economy of Nigeria.....	17
2.4.1 Agriculture and the Petroleum Industry in Nigeria.....	19
2.4.2 Satellites and Telecommunication Services in Nigeria.....	21
2.4.3 Manufacturing Industry in Nigeria.....	21
2.5 The Nigerian Construction Industry.....	22
2.5.1 The Importance of Construction Industry to Sustainability.....	25
2.5.2 Features and Characteristics of the Nigerian Construction Industry.....	29
2.5.3 The Products of the Construction Industry.....	30
2.5.4 Problems and Constraints of the Nigerian Construction Industry.....	31
2.5.5 Registration and Classification of Construction Firms in Nigeria.....	32
2.5.6 Nature and General Practice of Small-Scale Construction Firms in Nigeria.....	39
2.5.7 Contribution of Construction SMEs to Economic Development.....	42
2.5.8 Regulation and Construction SMEs Development.....	43
2.6 Summary.....	45
3.0 CHAPTER 3: Performance Improvement in the Construction Industry.....	47
3.1 Introduction.....	47
3.2 Factors Affecting the Performance of Small-Scale Construction Firms.....	48

3.2.1	Factors Affecting the Performance of SMEs in Developed Countries.....	49
3.2.2	Factors Affecting the Performance of SMEs in Developing Countries.....	50
3.2.3	Factors Affecting the Performance of SMEs in Nigeria.....	57
3.3	Approaches to Construction Firms Performance Improvement.....	62
3.3.1	Construction Firms Performance Improvement Components.....	62
3.3.2	Objectives of Construction Firms Development Programmes.....	64
3.3.3	Strategy for Implementing Contractor Development Programme.....	66
3.3.4	Challenges Facing Construction Performance Improvement Programme.....	67
3.3.5	Key Success Factors for Construction Firms Development Programme.....	68
3.4	Construction Firms Performance Improvement Measures, Framework and Models...	69
3.4.1	Theoretical Framework of Competitive Advantage for SMEs in China.....	70
3.4.2	Integrated Emerging Contractor Development Model.....	71
3.4.3	The National Contractor Development Programme (Framework).....	72
3.4.4	Construction Industry Development Framework.....	73
3.4.5	Framework to Improve Indigenous Contractors Participation in R&D.....	74
3.4.6	A Model for Construction Industry Development.....	75
3.4.7	The Construction Firms Competitive Diamond Framework.....	76
3.4.8	World Economic Forum Construction Industry Transformation Framework...	77
3.4.9	Small-Scale Construction Firms' Development Measures in Nigeria.....	78
3.5.	Performance Measurement in the Construction Industry.....	80
3.5.1	Evolution of Performance Measurement in the Construction Industry.....	81
3.6.0	Performance Measurement Models in the Construction Industry.....	84
3.6.1	Key Performance Indicators (KPIs).....	84
3.6.2	European Foundation for Quality Management Excellence Model (EFQM)...	85
3.6.3	The Balance Scorecard (BSC).....	86
3.6.4	The South African Construction Excellence Model (SACEM).....	88
3.6.5	Construction Industry Transformation Evaluation Framework.....	90
3.7.0	Agencies for Promoting SMEs Development in Nigeria.....	92
3.7.1	Industrial Development Centre's (IDCs).....	92
3.7.2	Small Scale Enterprises Credit Scheme (SSICS).....	93
3.7.3	The Nigerian Bank for Commerce and Industry (NBCI).....	93
3.7.4	The Nigerian Industrial Development Bank (NIDB).....	93
3.7.5	Central Bank of Nigeria (CBN)/Commercial Banks.....	93
3.7.6	World Bank SME II Loan Scheme.....	94
3.7.7	National Economic Reconstruction Fund (NERFUND).....	94
3.7.8	The National Directorate of Employment (NDE).....	95
3.7.9	International Financial Assistance.....	95
3.7.10	Bank's Equity Holding in Companies.....	95
3.7.11	Second Tier Securities Market (SSM).....	96
3.7.12	Small and Medium Enterprises Development Agency of Nigeria (SMEDAN)...	96
3.7.13	Nigerian Building and Road Research Institute (NBRRI).....	97
3.7.14	Bureau of Public Procurement (BPP).....	97
3.7.15	Technical Training and Extension Services Programme/State Agencies.....	98
3.8.0	An Overview of a Framework.....	98
3.8.1	Systematic Guide in Preparing Framework(s).....	99
3.9.0	Summary.....	100
4.0	CHAPTER 4: Formulation of the Conceptual Framework of the Research...	103
4.1	Introduction.....	103
4.2	The Nature of the Research and Selection of the Research Methods.....	103

4.2.1	Brief Overview of Research Strategies.....	104
4.2.2	The Mix-Method Adopted for the Study.....	107
4.3	The Research Design and Study Area.....	108
4.4	Study Population, Sample Size and Sampling Technique.....	110
4.5	Data Collection Instrument.....	111
4.5.1	Data Collection Phase One-Focus Group.....	112
4.5.2	Data Collection Phase Two-Questionnaire Survey.....	120
4.6	Method of Data Analysis.....	123
4.7	An Overview of Principal Component Analysis (PCA).....	124
4.8	Framework Development.....	125
4.9	Summary.....	126
5.0	CHAPTER 5: Exploring Factors and Measures Affecting Performance.....	127
5.1	Introduction.....	127
5.2	Analysis and Discussion of Focus Group.....	127
5.2.1	Company Related Factors.....	132
5.2.2	Financial Related Factors.....	132
5.2.3	Environment Related Factors.....	133
5.2.4	Government Related Factors.....	133
5.2.5	Industry Related Factors.....	133
5.2.6	Resource Related Factors.....	134
5.2.7	Client Related Factors.....	134
5.3	Measures to be Implemented in order to Improve Performance.....	135
5.3.1	Internal Measures.....	135
5.3.2	External Measures.....	137
5.4	Summary	138
6.0	CHAPTER 6: Construction SMEs Profile and Performance Indicators....	139
6.1	Introduction.....	139
6.2	Respondents Profile.....	139
6.2.1	Small Scale Construction Firms Management Profile.....	140
6.3	Small Scale Construction Firms Background.....	142
6.4	Techniques of Measuring Performance in the NCI.....	147
6.5	Performance Indicators for Construction Firms.....	147
6.6	Summary.....	150
7.0	CHAPTER 7: Composite Factors and Measures for SMEs.....	151
7.1	Introduction.....	151
7.2	Questionnaire Reliability Test.....	151
7.3	Descriptive Statistical Analysis of Factors Affecting Performance.....	151
7.3.1	Analysis of Company Related Variables.....	152
7.3.2	Analysis of Financial Related Variables.....	154
7.3.3	Analysis of Environment Related Variables.....	154
7.3.4	Analysis of Government Related Variables.....	155
7.3.5	Analysis of Industry Related Factors.....	157
7.3.6	Analysis of Resource Related Factors	158
7.3.7	Analysis of Client's Related Factors	159
7.3.8	Important Variables that affect the Performance of Construction SMEs.....	159
7.4	Descriptive Statistical Analysis of Measures to Improve SMEs Performance.....	161
7.4.1	Analysis of Internal Measures by Construction Firms.....	161

7.4.2	Analysis of External Measures by Government/Stakeholders.....	163
7.5	Identifying Critic Factors and Measures Affecting Performance of SMEs.....	165
7.5.1	Analysis of Company Related Factors.....	166
7.5.2	Analysis of Financial Related Factors.....	168
7.5.3	Analysis of Environment Related Factors.....	168
7.5.4	Analysis of Government Related Factors.....	169
7.5.5	Analysis of Industry Related Factors.....	171
7.5.6	Analysis of Resource Related Factors.....	173
7.5.7	Analysis of Analysis of Client Related Factors.....	173
7.6	Identifying Critical Factors and Measures using PCA.....	175
7.6.1	Assessment of Data Suitability.....	175
7.6.2	Factor Extraction.....	179
7.6.3	Components for Variables affecting Performance.....	179
7.6.4	Factor Rotation and Interpretation.....	183
7.6.5	Findings: Composite Factors that Affect the Performance of SMMEs.....	187
7.7	Components for Measures that Enhance Performance.....	192
7.7.1	Factor Rotation and Interpretation.....	195
7.8	Findings: Composite Measures that can Enhance Performance	199
7.9	Summary	207
8.0	CHAPTER 8: Development of Framework to Enhance Performance of SMEs.....	209
8.1	Introduction.....	209
8.2	A Framework to Enhance the Performance of Small Scale Construction Firms....	209
8.2.1	Level One – Identify and Rank Constraints Affecting Performance.....	211
8.2.2	Level Two – Design Programme and Objectives.....	211
8.2.3	Level Three – Identify and Assign Support Measures.....	211
8.2.4	Level Four – Internal and External Measures to be Implemented.....	212
8.2.5	Level Five – Implementation of the Support Programmes.....	213
8.2.6	Level Six – Performance Evaluation of Construction SMEs.....	213
8.2.7	Level Seven – Support Programme Monitoring and Evaluation.....	214
8.3	Summary.....	214
9.0	CHAPTER 9: Summary, Conclusion and Recommendations.....	215
9.1	Summary.....	215
9.2	Major Findings.....	216
9.3	Contributions of the Study.....	217
9.4	Limitation of the Study.....	218
9.	Recommendations resulting from the Study	218
9.7	Recommendation for Further Studies.....	219
	References.....	220
	Appendix.....	240

LIST OF APPENDICES

1.	Focus group interview Questions.....	240
2.	Sample of Questionnaire.....	249
3.	Total Variance Explained 30 Components (Factors).....	258
4.	Monte Carlos PCA result (Factors).....	259
5.	Other Components Factor(s).....	261
6.	Total Variance Explained 5 Components (Factors).....	267
7.	Total Variance Explained 20 Components (Measures).....	268
8.	Monte Carlos PCA result (Measures).....	269
9.	Other Components Measure(s).....	270
10.	Total Variance Explained 13 Components (Measures).....	276
11.	Source Author(s) Identified Factors Affecting Performance.....	277
12.	Source Author(s) Identified Measures that can Enhance Performance.....	278

LIST OF TABLES

Table 2.1: Trend of Nigeria Gross Domestic Product (GDP).....	18
Table 2.2: Ranking of Nigeria Economy in the World.....	18
Table 2.3: Real GDP and Construction Sector Growth.....	19
Table 2.4: Construction Firms Categorization by BPP.....	38
Table 2.5: Construction Firms Classification by SMEDAN.....	39
Table 3.1: Factors Affecting the Development of Construction Industry.....	50
Table 3.2: Problems Affecting the Performance of SSC in India.....	55
Table 3.3: Factors Affecting the Performance of SSCF in Nigeria & South Africa.....	61
Table 3.4: Summary of Factors Affecting Performance	101
Table 3.5: Summary of Measures Improving Performance	102
Table 4.1: Sample Size for each State of the Study.....	111
Table 5.1A: Summary of Extracted Participants' Statement by Category.....	129
Table 5.1B: Summary of Extracted Participants' Statement by Category.....	130
Table 5.1C: Summary of Extracted Participants' Statement by Category.....	131
Table 5.2: Summary of Extracted Participants' Statement by Category.....	136
Table 5.2: Cont. Summary of Extracted Participants' Statement of Category.....	137
Table 6.1: Administered Questionnaires to Small Scale Construction Firms.....	139
Table 6.2: Respondents Educational Qualification.....	140
Table 6.3: Membership with Professional Body.....	141
Table 6.4: Years of Respondents Experience in the Construction Industry.....	141
Table 6.5: Area of Specialization of Small Scale Construction Firms.....	142
Table 6.6: Years of Company Operation in the Construction Firms.....	143
Table 6.7: Size of Company Annual Turnover.....	144
Table 6.8: Size of Company using Number of Employees.....	145
Table 6.9: Company Registration with Bureau of Public Procurement (BPP).....	146
Table 6.10: Techniques of Measuring Performance in the Construction Industry.....	147
Table 6.11: Performance Indicators for Construction Firms.....	148
Table 6.12: Perception of Respondents' on Performance of SMEs.....	149
Table 7.1: Analysis of Construction Company Related Factors.....	153
Table 7.2: Analysis of Financial Related Factors.....	154
Table 7.3: Analysis of Environment Related Factors.....	155

Table 7.4: Analysis of Government Related Factors.....	156
Table 7.5: Analysis of Industry Related Factors.....	157
Table 7.6: Analysis of Resource Related Factors.....	158
Table 7.7: Analysis of Government Related Factors.....	159
Table 7.8: Important Variables that Affect Performance.....	160
Table 7.9: Internal Measures to be Implemented by Construction Firms.....	162
Table 7.10: External Measures that could Improve Performance.....	164
Table 7.11A: Reliability Statistics for Company Related Factors.....	167
Table 7.11B: Reliability Statistics for Company Related Factors.....	167
Table 7.12: Reliability Statistics for Financial Related Factors.....	168
Table 7.13: Reliability Statistics for Financial Related Factors.....	169
Table 7.14A: Reliability Statistics for Government Related Factors.....	170
Table 7.14B: Reliability Statistics for Government Related Factors.....	170
Table 7.14C: Reliability Statistics for Government Related Factors.....	171
Table 7.15A: Reliability Statistics for Industry Related Factors.....	172
Table 7.15B: Reliability Statistics for Industry Related Factors.....	172
Table 7.16A: Reliability Statistics for Resources Related Factors.....	173
Table 7.16B: Reliability Statistics for Resources Related Factors.....	173
Table 7.17: Reliability Statistics for Client Related Factors.....	174
Table 7.18: Summary of Retained Variables Affecting Performance.....	174
Table 7.19 KMO and Bartlett's Test for Overall Factors.....	177
Table 7.20 KMO and Bartlett's Test for Overall Measures.....	177
Table 7.21 Individual KMO Values for Factors Affecting Performance.....	177
Table 7.22 Individual KMO Values for Measures to Enhance Performance.....	178
Table 7.23 Total Variance Explained: 30 Components Factors.....	180
Table 7.24 Total Component Matrix: 20 Components Factors	185
Table 7.25 Rotated Component Matrix: 5 Components Factors	186
Table 7.26 Total Variance Explained: 5 Components Factors	187
Table 7.27 Total Variance Explained Initial Extraction: 20 Components Measures.....	192
Table 7.28 Rotated Component Matrix: 20 Components Measures	196
Table 7.29 Rotated Component Matrix: 13 Components Measures	198
Table 7.30 Total Variance Explained: 13 Components Measures	199
Table 7.31 Title of the Determined Composite Factors.....	206
Table 7.32 Title of the Determined Composite Measures.....	207

LIST OF FIGURES

Fig. 2.1 Map of Nigeria, Showing; States, Boundaries, Cities and Waterways.....	16
Fig. 3.1 Theoretical Framework of Competitive Advantage for SMEs in China.....	71
Fig. 3.2 Integrated Emerging Contractor Development Model.....	72
Fig. 3.3 The National Contractor Development Programme Framework.....	73
Fig. 3.4 The Construction Industry Development Framework.....	74
Fig. 3.5 Framework to Improve Indigenous Contractor Participation in R&D.....	75
Fig. 3.6 Model of the Factors Contributing to Development of Construction Industry.....	76
Fig. 3.7 The Construction Firms Competitive Diamond Framework.....	77
Fig. 3.8 Construction Industry Transformation Framework.....	78
Fig. 3.9 The EFQM Excellence Model.....	86
Fig. 3.10 The Balance Scorecard Model.....	88
Fig. 3.11 The South African Construction Excellence Model (SACEM).....	89
Fig. 3.12 Construction Industry Transformation Evaluation Framework.....	91
Fig. 4.1 Research Design.....	108

Fig. 4.2 Research Conceptual Framework	110
Fig. 4.3 Phases of Primary Research Stage.....	112
Fig. 4.4 Steps in the Design and Use of Focus Group.....	115
Fig. 4.5 Steps in the Analysis of Focus Group Data.....	119
Fig. 4.6 Major Steps in the Survey Process Source.....	121
Fig. 5.1 Distributed and Returned Questionnaire.....	139
Fig. 5.2 Respondents Educational Qualification.....	140
Fig. 5.3 Respondents Membership of Professional Associations.....	141
Fig. 5.4 Respondents Years of Experience in Construction.....	142
Fig. 5.5 Specialization of Construction Firms.....	143
Fig. 5.6 Years of Operation of Construction Firms.....	144
Fig. 5.7 Annual Turnover of Construction Firms	144
Fig. 5.8 Company Size Using Employees.....	145
Fig. 5.9 Company Registration with BPP.....	146
Fig. 5.10 Respondents Perception of SMEs Performance.....	150
Fig. 7.1 Scree Plot of Components (Factors).....	181
Fig. 7.2 Snapshot of Monte Carlo PCA for Parallel Analysis (Factors).....	182
Fig. 7.3 Component Plot in Rotated Space.....	184
Fig. 7.4 Scree Plot of Components (Measures).....	193
Fig. 7.5 Snapshot of Monte Carlo PCA for Parallel Analysis (Measures).....	194
Fig. 8.1 Framework to Enhance the Performance of Construction SMEs.....	210

LIST OF SYMBOLS/ABBREVIATIONS

GDP	Gross Domestic Product
SMEs	Small and Medium Enterprises
SMCFs	Small and Medium Construction Firms
BPP	Bureau for Public Procurement
SMEDAN	Small and Medium Enterprises Development Agency of Nigeria
SSC	Small Scale Contractors
SSCFs	Small Scale Construction Firms
INC	Indigenous Nigerian Contractors
CBN	Central Bank of Nigeria
NCI	Nigerian Construction Industry
GNP	Gross National Product
CIB	Construction Industry Board
CIDB	Construction Industry Development Board
NCC	National Construction Council
WEF	World Economic Forum
OPEC	Oil Producing and Exporting Countries
APEC	Asia-Pacific Economic Co-operation Countries
INEC	Independent National Electoral Commission
IMF	International Monetary Fund
UK	United Kingdom
USA	United States of America
ILO	International Labour Organization
CAC	Corporate Affairs Commission
ITF	Industrial Training Fund
NASME	National Association of Small and Medium Scale Enterprises

\$	United States Dollars
N	Nigerian Naira
UNIDO	United Nations International Development Organization
WTO	World Trade Organization
SAP	Structural Adjustment Programme
IT	Information Technology
IBRD	International Bank for Reconstruction and Development
SNCDP	South African National Construction Development Programme
IYCB	Improve Your Construction Business
TOT	Training of the Trainers
NBC	National Building Code
NCDP	National Construction Development Programme
CSA	Contractor Support Agency
R&D	Research and Development
UNDP	United Nation Development Programme
ISO	International Standard Organization
IDCs	Industrial Development Centre's
SSICS	Small Scale Enterprises Credit Scheme
LMCs	Loan Management Committees
NBCI	Nigerian Bank for Commerce and Industry
NERFUND	National Economic Reconstruction Fund
NDE	National Directorate of Employment
ADB	African Development Bank
SSM	Second Tier Securities Market
MSME	Micro, Small and Medium Enterprise
BSCs	Business Support Centre's
NBRRRI	Nigerian Building and Road Research Institute
CBPP	Construction Best Practice Programme
PM	Performance Measurement
PI	Performance Indicators
CII	Construction Industry Institute
KPI	Key Performance Indicator
BSC	Balanced Scorecard
EFQM	European Foundation for Quality Management
SACEM	South African Construction Excellence Model
PCA	Principal Component Analysis
α	Alpha
RII	Relative Importance Index
IM	Internal Measure
EM	External Measure